MANAGEMENT

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by R. O. Beckman

COST REDUCTION THROUGH MATERIAL HANDLING

ANALYSIS OF THE PROBLEM THROUGH DEVELOPMENT OF COSTS

ORGANIZING TO CUT HANDLING COSTS

ROBERT S. RICE, JR., Production Editor, *Factory Management & Maintenance* Magazine, McGraw-Hill Publishing Company, New York City

A successful cost reduction program is one that is organized in considerable detail before it is launched. Organizing to cut handling costs effectively requires a few fundamental steps: 1) Define the program; 2) Place responsibility and authority for action; 3) Set up the work to be done; 4) Provide people and facilities to get the job done; 5) Integrate the program with all related programs and activities; 6) Start it in a favorable climate.

WHAT ARE HANDLING COSTS AND HOW TO FIND THEM

PAUL R. MINICH, JR., Industrial Consultant and President, Material Handling Products Corp., Jenkintown, Pa.

Approximately 11.2 billion dollars are spent per year in the U. S. on direct and indirect labor used in material handling. In his discussion of what material handling costs are and how to find them, Mr. Minich explains how to find your material handling costs through proper analysis of time study sheets, flow charts and plant layouts.

THE FUTURE IN MATERIAL HANDLING

D. S. HARDER, Executive Vice President, Basic Manufacturing Divisions, Ford Motor Co., Dearborn

Mr. Harder is eminently qualified to forecast the future in Material Handling. One of his developments, the introduction of "automation" in pressed steel, engine work, and machinery operations, is considered the major innovation of the past decade in automotive manufacturing.

HOW TO PLAN LOWER COST HANDLING — Panel Discussion

W. C. ALLEN, Director, Manufacturing Planning, Westinghouse Electric Corp., Pittsburgh

E. D. DITTO, Detroit Transmission Div., General Motors Corp., Ypsilanti, Michigan

RAY REUL, Coordinator, Industrial Engineering Dept., Food Machinery & Chemical Corp., New York

Advance planning is the key to efficient low cost handling. Emphasis will be placed on the interrelation of various planning groups who must share the responsibility on the development of such a system. Such cooperation must exist in order to effectively overcome the overlapping responsibilities inevitably resulting from a truly integrated material handling system.

CASE STUDIES IN MODERNIZATION — Two Panel Discussions

GEORGE G. RAYMOND, JR. (Panel Moderator), President, The Raymond Corp., Greene, N. Y., and President, Material Handling Institute

A. M. BARRETT, JR., President, Barrett-Cravens Company, Northbrook, Illinois

W. P. CONWAY, Sales Manager, Eastern Div., The American Monorail Co., Cleveland, Ohio

O. S. CARLISS, Director of Engineering, Yale & Towne Manufacturing Co., Yale Materials Handling Div., Philadelphia

J. H. WALKER (Panel Moderator), President, The Fairfield Engineering Co., Marion, Ohio; and President, Conveyor Equipment Manufacturers Association

JERVIS C. WEBB, President, Jervis B. Webb Co., Detroit; and Chairman, ASME Material Handling Division

HERBERT S. JONES, Transportation Supt., Dominion Bridge Co., Ltd., Montreal, Canada; and President, American Material Handling Society

MARTIN VANDER LAAN, Manager, Operations, Robbins Engineers Div., Hewitt-Robbins Co., New York

Two authoritative panels devoted to the consideration of cost reduction achieved through modernization of material handling methods in various factories, plants, mills and warehouses, with all types of mechanical handling devices used in continuous and intermittent handling. Each panel presentation will be followed by an open discussion to answer questions.

STABILIZING EMPLOYMENT

L. BERKELEY DAVIS, General Manager, Electronics Components Div., General Electric Co., Owensboro, Ky.

Management's greatest problem today is the control and reduction of cost. One of the areas with the greatest potential for cost reduction is that of "stabilizing employment." Methods and tools used for planning stable employment will be discussed. These will include sales forecasting, use of inventory control as a tool to stable employment, the proper role of overtime, reduced working schedules, and attrition to maintain a stable work force.

HOW TO GET BETTER HANDLING PERFORMANCE

HOW TO LOWER COSTS WITH YOUR MATERIAL HANDLING SYSTEM

FRANK F. MIDDLESWART, Dir., Mgt. Engr. Secs., E. I. du Pont de Nemours & Co., Inc., Wilmington

How can the performance of a material handling system be improved? Three main factors should be analyzed, namely: Equipment, Controls and People. Equipment should be studied to achieve maximum utilization and minimum maintenance. Control of the system must include such factors as communications and inventory planning. Finally, the people who operate the system should be brought to peak performance by training, incentives, and safety-consciousness.

HOW TO JUSTIFY A NEW MATERIAL HANDLING SYSTEM

ALLAN F. HARDY, JR., Manager, Production Control, Norton Company, Worcester, Mass.

The facts being available, how are they interpreted to justify the expenditure? Long and short range capital expenditure planning must be considered. Measurement of the projects' worth, i.e., return on investment, will weigh heavily in arriving at a conclusion. The magnitude of the expenditure dictates the organizational level with which approval rests. In any event, a post audit of results should be made to guide future estimates of cost, worth, and results.

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S.A.M. Constitution

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Executive Discontent

NOT LETTING people know where they stand is an underlying cause of executive discontent. People want to know what is expected of them, how they are doing, and how they can be more effective. Letting people know these things is a responsibility of every manager.

To insure that these responsibilities are carried out, many companies have adopted a three step program. Many of these programs begin with the president and cover all levels of management. The three steps are:

1. Clarification of authority and responsibility.
2. Establishing standards of performance.
3. Appraising results.

Clarification of Authority and Responsibility:

When Harleston R. Wood, President of Alan Wood Steel Company, launched their program, he and his top management people developed a booklet entitled, "Management Job Clarification Program." Some of their reasons for job clarification are:

1. It brings about a decided improvement in performance and morale because every manager can do a better job if he knows what he is expected to do and exactly what authority he has.
2. It results in delegating decision making to lower management, speeding up of decisions, and encourages ideas for improvement to filter upward.
3. It aids in developing managers and paves the way for determining standards of performance.

Performance Standards:

Performance standards are not new. But the application of performance standards to management jobs is relatively new and a real part of "measurement." Performance standards frequently are defined as "a statement of conditions which will exist when a good job is being done."

The development of performance standards is not easy. They require time, good judgment, complete knowledge of the job, and ability to visualize the results expected. Just because it is a difficult task is no reason for not doing it, nor should we expect perfection at the outset. What is more important is that a standard be fair and reasonable, and so accepted so there is an understanding between a man and his boss as to what constitutes a good job.

The president of a large insurance company pointed out that he and his vice presidents, when they first undertook such a program, couldn't even agree on what was most important, much less what the standard should be. The discussions which took place cleared the air and since then they have extended standards to the first line supervisors.

Performance standards also aid in: developing people, improving basic attitudes, stimulating self evaluation, raising the general level of performance, and providing a basis for appraisal by management.

Appraisal of Results

Since management is "getting results through people," appraising performance on a systematic and regular basis is a very important part of every managers job. There are many acceptable techniques to appraisals but more significant is the underlying philosophy — development of the individual.

Since dissatisfaction stems from not knowing where we stand, any action which will bring about a better understanding between a man and his boss will go a long way toward eliminating executive discontent.

John B. Joynt
National President

ROGER HULL joined Mutual of New York immediately after graduation from Kentucky Wesleyan College in 1928, starting as a field underwriter in Meridian, Mississippi. In 1931 he was appointed District Manager at Meridian. He was made Manager of MONY's Nashville agency in 1935. In 1938 he was appointed Assistant Superintendent of Agencies at the home office in New York, and named Vice President and Manager of Agencies in 1941. He was elected Executive Vice President and Trustee in 1950.

The Art In Scientific Management

By Roger Hull
Executive Vice President
Mutual of New York

BUSINESS costs, a subject that was neglected for a long time, is now recognized as a major subject for top management consideration.

Cost reduction today necessarily involves the application of highly complicated technical equipment, and the adaptation of engineering principles to office work. But, we must also recognize the problems that arise in integrating these things into successful office management. To my mind, this problem is one of the most pressing.

I am sure there is no question among business leaders that the development of scientific equipment and techniques, such as cost controls and work standards, have added greatly to our productive capacities and efficiency and so reduced our operating costs. All of this has contributed to raising the living standards and incomes of office workers by increasing their productive capacities. I certainly don't intend to minimize or deprecate in any way the great contribution that has been and is being made in these areas. But, important as these have been, I have a deep conviction that you gentlemen have a real problem to solve in the introduction and implementation of these scientific principles in office management, and that this problem is one involving leadership and human relationships.

Important as scientific developments have been, and even though their contribution has been and will continue to be extremely valuable, I know you will agree that, basically and primarily, business management is an *art*, not a *science*. The science of business procedures is extremely important, but in the final analysis, work is accomplished, not by systems, rules or procedures, but by people. And people—even as you and I—are complex individuals, who may respond differently or similarly to various stimuli. As some philosopher has said, "Mankind is both the glory and scandal of the universe"; and the way any individual turns out is likely to depend largely upon the satisfactions he obtains from his relationships with others, and the manner in which he, as an individual, has been motivated.

People must be properly motivated, if we are to have them draw upon the real well-springs of their capacities. The greatest and most efficient procedure, in my book, is the one that will *inspire* people to do the best job of which they are capable. I would be the last to argue against sound procedures and scientific methods; but there is great danger, I believe, that in the development of these new tools, management may place too much reliance on their effectiveness. Good procedures and methods are essential to obtain maximum results, but there is another factor more important than sound procedures. It has been my observation that enthusiastic people will do better work even with *poor* procedures, than unenthusiastic people will do with *good* procedures. And that principle is even more true when *groups* of people are concerned. When a business can achieve a combination of scientific procedures and enthusiastic workers, it has found the perfect answer to business efficiency. That is the combination for which we all strive.

Military leaders were quick to learn that the difference between ordinary troops and crack troops, after they have been given the same training, usually depends upon that indefinable something called morale. If men have pride in their work and in their working group, they will do a better job. How true it is that an individual will often expend more effort for his group than he will for himself.

Call it morale. Call it enthusiasm. Call it zeal. Call it job interest. Call it drive. Call it team spirit. Call it the old college try. Call it anything you want—it's still one of the greatest ingredients in human performance. In business, it can make bad procedures look good; and lack of it can make good procedures look bad.

If all this is true, how do we go about developing this very important intangible?

University Chapter
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STANDINGS
as of April 1, 1957

Mississippi State College	4900
Indiana University	4200
Ohio University	3975
University of Pittsburgh	3965
University of Texas	3740
Boston College	3640
University of Alabama	3520
American University	3465
University of Minnesota	3435
Clarkson College	3280
Boston University	3195
University of California (L. A.)	3130
University of Connecticut	3085
Franklin and Marshall	3020
University of Houston	3015
University of California (Berkeley)	2985
Rider College	2970
Guilford College	2935
University of Wisconsin	2895
Syracuse University	2745
University of Baltimore	2620
Alabama Polytechnic Institute	2555
Rutgers University	2460
St. Johns University	2365
Los Angeles State College	2335
Pennsylvania State University	2155
Louisiana State University	2020
University of Rhode Island	1955
LaSalle College (Evening Division)	1875
Tulane University	1790
University of Detroit	1590
Western Michigan College	1550
Temple University	1455
University of Southern California	1340
Roosevelt University	1125
Kansas State College	1080
DePaul University	1065
University of Missouri	1045
Hofstra College	1040
College of William and Mary	965
West Virginia University	945
Woodbury College	925
Georgetown University	860
Cornell University	840
University of Oklahoma	800
San Diego State College	720
Seton Hall University	665
Georgia Institute of Technology	365
Babson Institute	265
Loyola University (Chicago)	200

First, I think people should be put into work that they find congenial to their talents and temperaments. One of the greatest tragedies of our complex, modern civilization is that we have too many square pegs in round holes. This results in a tremendous loss of human resources and a waste of human abilities.

Your own studies have shown that jobs should not be broken down so far that they become too monotonous and uninteresting. That sort of thing does something to a man's soul and spirit. Specialization, while it undoubtedly promotes productive efficiency today, can defeat its own purpose in the long run if carried too far, because it will then kill the job-interest and morale of the worker who is subjected to it.

We all agree, I am sure, that an individual must find some pride of accomplishment in what he does. The desire to serve a useful purpose in life is one of the most deeply-rooted human instincts. It gives a man's life the social and moral purposes that differentiate mankind from all other forms of life. Unless an individual feels that his work has importance and usefulness to others, he becomes frustrated.

There must be more than *economic* satisfaction in daily work. The Bible tells us that "Man doth not live by bread alone." And Thomas Carlyle defined very well the spiritual satisfactions that daily work *should* bring, when he said, "Even in the meanest sorts of labor, the whole soul of a man is composed into a kind of real harmony the instant he sets himself to work . . . Blessed is he who has found his work."

We are all, I am sure, believers in the dignity of the individual, and in his right to be treated as an individual person. People who go into office work do so, among other reasons, because they do not want to be treated as "labor in the mass." They want to be dealt with as individuals, and unless they get such treatment they become unhappy. In his "Meditations," the Roman Emperor, Marcus Aurelius, said, "Remember this —that there is a proper dignity and proportion to be observed in the performance of every act of life."

People lose enthusiasm for their work if they are required to "live by the rules" too closely. Such a system can result in too much conformity. This tends to kill the initiative and produces boredom, with its deadening effects on the individual's personality and health. Too many rules create what someone has defined as the "Yes sir! No, sir! ulcer" type of organization, and cause undue "fear of error." He who makes no mistakes is also unlikely to make much progress.

Best results can be obtained only if the organizational system is designed to encourage the full exercise of individual judgment and ability at every level of a business. If people are given more scope, instead of being hedged in, I have found they will usually do a better job. One of the most important assets in any business is the creative thinking of those in the ranks; and too often it is stifled, rather than encouraged.

Not all of us have been fortunate in finding the work we like best. Rather, many of us have learned to like our job and to adjust ourselves to the distasteful parts of our job. Needless to say, the individual has a responsibility to create opportunities and to gain satisfaction in accomplishment, whatever his job may be. But, I am sure we all agree that it is up to management to stimulate and encourage the full exercise of individual judgment and ability.

We need controls, but we must avoid too many controls against the possibility of occasional error. Excessive controls frustrate people and undermine their self-reliance. And the errors such controls prevent often cost far less than the red tape imposed to prevent such errors.

Finally, insofar as possible, every job should be designed so that it represents harmonious work and challenge, thereby drawing out the best capabilities of an individual. Time after time in everyday operations we see evidence that the potential abilities of a given person are far greater than we think. It has been said that, whenever America has faced a crisis, we have fortunately had a man with the capabilities to meet it. I believe this was not entirely because any special man of destiny was there to meet the opportunity, but because in many cases the opportunity created the man. Likewise, if we want to create able people in business, we must not restrict their opportunities, but enlarge them. I firmly believe that most people will rise to the challenge.

All of this leads to what I believe to be the real key to success in office management. If you accept my premise that business management is more of an art than a science, then the key to success lies in one word—Leadership. I contend that a group of average people with poor procedures and superior leadership can produce more than superior people with the best procedures and poor leadership. That leadership must stem from the office manager. The office manager provides the attitude—negative or positive. The office manager provides the company or department personality—vibrant, enthusiastic and challenging or dull, passive and uninspiring. The office manager provides the purpose—courageous, confident and unselfish or timid, uncertain and selfish.

In short, the office manager provides the leadership. No one else can supply it. If he does not have it, he cannot buy it. No one can give it, nor can it be borrowed. He who holds it has earned it by his own acts in relation to those for

whose destiny he has accepted responsibility. I was privileged to hear a few months ago an outstanding address by Mr. Edward Hanify, a distinguished lawyer of Boston, on the subject "Leadership—An Exalted Trust." In this very fine address Mr. Hanify had this to say—

> "In the interior of our consciousness each of us has a sort of private hall of fame reserved exclusively for the real leaders who have influenced the direction of our lives. Relatively few of the many men who have exercised authority over us from childhood through adult life meet our test for admission to this precinct. That test has very little to do with the outward trappings of power or an abundance of this world's goods. The leaders whom we admit into this private sanctuary of our reflective meditation are usually those who set our hearts afire with devotion to truth, who made obedience to duty seem the essence of manhood, who transformed some ordinary routine occurrence so that it became a vista whence we saw the man we aspired to be. The leaders of our choosing were men who personified faith and fidelity, who were instinctively repulsed by what was unclean or unfair, in whose presence evil cringed and seemed repulsive; men who were blessed with a faculty of striking a direct blow at the painted face of falsehood and deceit and were capable of awakening in us a desire to develop to the fullest our own talents and aptitudes."

By his attitude the office manager sets the tone for the whole shop. I grew up in the sales end of our business. Those of you who have had sales experience know how important attitude is in the effectiveness of salesmen. I believe it to be equally important in the productivity of office workers. I had an experience during the war which illustrates my point. I was in charge of sales. We started to get complaints from salesmen around the country about gas rationing. I got calls and letters from different people wanting us to go to Washington and insist on more liberal treatment for life insurance agents. I then checked more of our people and got varying responses. But I shall never forget the response from one of our top producers in Boston. I said, "Jake, how are you making out under the gas rationing?" Jake said, "Oh, this gas rationing is the greatest thing that ever happened. I used to go back three or four times to close a case. Now I tell them I have no gas to come back so I'm getting checks with nearly all my applications. It saves me a lot of time."

Never a truer word was spoken than when someone said the optimist sees the opportunity in the difficulty. The pessimist sees the difficulty in the opportunity. The office manager, too, can be either an optimist or a pessimist, and what he is sets the tone for the whole office.

An office manager doesn't build good morale by placing the responsibility for unpopular rules on top management or by referring the employee to someone up the line for an explanation of the rule of procedure. He builds character as a leader by supporting company policies and making decisions within the framework of those policies.

An old timer in my company was visiting with me recently. He said, "Many years ago, when I came in the business, my supervisor was the company to me. When I went to him with a problem, I got an answer. Maybe I didn't always like it, and maybe I didn't always agree with it, but I accepted it as final. Today when I go to my supervisor, he wants to take it up with his boss before giving me an answer."

If the manager or supervisor wants to earn the position of leadership with his people, he must be a leader and make decisions. Of course he will make mistakes, but he learns by experience. He will never earn the right to leadership unless he learns to exercise sound judgment by actually making decisions.

The office manager builds no character as a leader when he tells his men, "This is the way the Boss says you must do it." A manager or supervisor who earns the right to leadership is one who can execute and support directives from headquarters. If he disagrees, he makes his views known at headquarters and not to the people who look to *him* for leadership and who must live under those directives until they are changed.

What then are the characteristics of great leadership? *The basic foundation of leadership is justice.* The leader with a real sense of justice and fairness is more concerned about the treatment accorded those he leads than he is about the authority he has over them. He will attach more importance to making good on a commitment—even though mistakenly made—than upon a substantial accomplishment which can be ob-

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tained by a slight modification or compromise in the commitment made.

The cornerstone of leadership is faith. There is nothing worthy of achievement, nor possible of accomplishment without faith. The real leader, therefore, has faith in his purpose. He believes in its feasibility and its worth. He believes in his own powers with God's help to achieve it. He believes in himself! He believes in his fellow man. Above all he believes in God! All things are possible to him that believeth. Let a man have faith and before long those associated with him have faith. Let a man have faith and he will find that he and those he leads can face all problems and move forward through all difficulties in pursuit of their established goals.

The capstone of leadership is wisdom. Few men have it, but no leader has become *great* without it. This explains why, as Mr. Hanify said, "few men who have touched our lives are ever given access to our private hall of fame." A man can be born with intelligence, knowledge can be acquired, skill can be developed, but wisdom comes from God.

The leaders of history who meet the test of *greatness* have been those who showed evidence of a ready access to the throne of God and since it became available frequent study of His word as recorded in the Holy Bible. Washington said, "It is impossible to rightly govern the world without God and the Bible."

Lincoln said, "I believe the Bible is the best gift God has ever given to man. All the good from the Saviour of the world is communicated to us through this book."

Robert E. Lee said, "In all my perplexities and distresses, the Bible has never failed to give me light and strength."

We read of Jacob out yonder at Bethel, the windows of Heaven a ladder reaching from earth into Heaven and the angels ascending and descending upon it. For my part, I am convinced that every truly *great* leader has somewhere, like Jacob, a Bethel of communion with God. From such communion comes wisdom. Such wisdom makes leaders *great.*

He who faces life armed with such wisdom shall not know defeat. Dangers cannot frighten, difficulties are but challenges. The power of his leadership cannot be forestalled. It is unchanging, unyielding, eternal! It therefore cannot fail. ■

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Twelve Years Of Unconscious Level Testing Of Marketing Tools

By Louis Cheskin

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IN THE ARTICLE, *Indirect Approach to Market Reactions*, published in the September, 1948, issue of *Harvard Business Review*, L. B. Ward, director of admissions of the Harvard Business School, and I discussed unconscious factors of behavior (in the supermarket).

The inadequacy of the direct approach to determine how people will react to an object—package or ad—was covered in that article. Factors determining purchases were outlined. Abstract factors influencing behavior in special (marketing) situations were pointed out. Meanings and motivations were analyzed in the light of testing with indirect techniques on an unconscious level.

In 1948 Color Research Institute, the source of most of the information in that article, had had three years of experience in testing actual marketing media on an unconscious level. Before that date, the indirect methods were used in testing colors and images as such, unrelated to specific brands and independent of the limiting elements of established logotypes and mandatory selling copy, which are integral parts of every package or ad.

There are now nine more years of experience in testing marketing media on an unconscious level. What has been learned in the last nine years? Have any new indirect testing techniques been developed? Are designers guided by the findings of unconscious level tests? Why do marketing men rely on unconscious level tests? Have the results of the tests that were conducted on an unconscious level in the past twelve years been confirmed by marketing experience?

The purpose of this article is to answer the above questions.

What Has Been Learned in the Last Nine Years?

One of the important conclusions that was drawn from tests conducted after 1948 is the necessity for determining the involuntary reactions to a package or ad before taking steps to ascertain consumer attitudes towards the marketing tool.

Marketing specialists have always been aware of the importance of impact. They knew that for a package or an ad to be effective, it has to be striking, it has to attract attention and sustain a degree of interest. However, reliable tools for measuring these attributes of a marketing tool were lacking until recent years.

After many devices, methods and techniques had been tried, optical instruments were found to be most reliable for determining involuntary reactions to a package or other marketing tools. Optical instruments are now used to measure three aspects of a package—visibility of the package as a whole from the shelf, readability of the brand and product names and eye-movement which shows how the design guides the eyes and where it holds and does not hold attention.

Another recent development is the use of accumulated data on color and imagery. Much information has been gathered about specific colors and images which serves as a basis for initial evaluation of a specific color or image on a package. It is no longer necessary, for example, to conduct a test with consumers to find out whether an oval or a rectangle is a more effective framing device. Tests conducted in the last twenty years have consistently shown that of the two geometric images, the oval is the more effective device. It has greater preference and greater retention in the memory. Association tests have shown that ovals have predominantly favorable associations and rectangles have largely unfavorable associations.

Association ratings are important because they affect preference. For example, an orange-red without a specific association rates low and magenta red rates high. However, in the kitchen or in association with a kitchen product, orange-red has a higher preference rating than magenta red.

There is now available much data on geometric images, such as ovals, circles,

triangles. Many tests have been conducted with many types of images and it has been found that modification of an image has a definite effect on consumer reactions.

However, because images have limitless possibilities for variation and modification there is not nearly as much information available on images as there is about colors with specific identity.

Because accumulated information on a color or an image can be applied to many problems for many products, color and image ratings are not costly.

OCULAR measurements to determine involuntary reactions are made with little effort and, therefore, obtained at low cost. Because involuntary reactions do not involve associations and complex psychological factors, only a few individuals are needed for the ocular tests. However, more than one individual must be used in the ocular tests because there is no assurance that any one person chosen has normal vision. It has been found that it is necessary to use three to six individuals for measuring involuntary reactions to a package.

It is now possible to make some judgments just on the basis of ocular measurements, plus color and image ratings. An analysis at this point may show the need for new designs, complete or only slight revision, or it may indicate further testing.

If the ratings of the component elements of a package are favorable, that is, if it is found that the colors and brand identifying image rate high and if the package rates excellent or good in visibility, readability, and the eye-movement test, it is then necessary to learn the psychological effect of the package as a whole because the whole is different from and more or less than the sum of its parts.

It is and always has been evident to some specialists in the packaging field that in order to determine the effectiveness of component elements of a package it is necessary to learn which specific element is strong and should be retained and which is weak and should be eliminated or replaced with a strong element. However, it had been traditionally assumed that the whole is the sum of its parts and therefore it was taken for granted that the package as a whole was good or effective if each component part of the package was found to be good or effective.

Gestalt psychology has demonstrated that the whole is different from and more or less than the sum of its parts. This Gestalt psychology principle is now being applied in marketing research. The recent application of this principle in testing packages and ads is one of the most important contributions to marketing research. It is one of the major reasons for the reliability of present day market testing.

Another vital addition to the arsenal of marketing research is the association-type test, which was born in the field of Psychoanalysis and has been modified and developed in recent years to serve as an aid in market testing. The association-type test has been found to be the most effective device for discovering consumer attitudes.

To meet market testing needs, pioneers of association-type tests have developed controls that make it possible to conduct the tests on an unconscious level. The test consists of two parts. One part is a control. It is planned to be of interest to the individuals in the sampling. It is a device for winning the interest of the consumers. It is presented so that those in the sampling react spontaneously to the control part of the test and to the actual object (package, ad or trademark) being tested. There are additional controls incorporated into the design of the test. The association test is conducted so that the participants react naturally, without inhibition and defense mechanisms entering into the test situation. They merely check a number of attitude words, favorable and unfavorable, in association with the package, design, image, color, trademark, etc.

Experience has shown that it is advisable for the control part of the test to have little or no copy. The objective is to make sure that the participants in the test are not aware of a commercial purpose in the test or that the test is being conducted for a client. In this respect, Color Research Institute has a clear advantage because its name in no way suggests marketing research.

After a little experience with association-type tests it became evident that it was necessary to have a special test design with specific attitude words applicable to each type of product. That is, special association test questionnaires have to be designed for food products, toiletries, soaps, etc.

The consumer samplings are divided into a number of classifications—socio-economic, age, sex and geographic area. The statistics are usually broken down in accordance with the consumer sampling classifications. An association test report, specifically one from Color Research Institute, contains some pages showing the total favorable and total unfavorable attitudes. There also are pages listing attitude words according to rank, that is, those showing the greatest number of reactions or specific associations at the top and the smallest number at the bottom.

Although an association test report is statistically comprehensive and shows many aspects or sides of consumer reactions, experience in dealing with management has shown that the analysis has to be concise. The statistical part of a Color Research Institute report, which covers a sampling of from 800 to 1,200 consumers in at least four parts of the country, consists of from 30 to 120 pages. The analysis generally consists of one page. The report is presented so that the client can make his own analysis if he wishes to do so.

Occasionally it is found that an association test is not conclusive. To meet such a situation an indirect preference test has been developed. The indirect preference test is designed so that the consumers participating in the test think one thing is being tested whereas actually it is something else. For example, a test is conducted on colors for a living room. The participants become involved in an interior decoration test, which is so designed that the participants incidentally reveal their reactions and attitudes to the objects being tested. Often the participants are asked to choose a prize from a number of objects. Their choice, made in the realm of self-interest, is what is really being tested.

MOST indirect preference tests are designed to disclose sensation transference from the package to the product. The test is planned so that the impression given is that the product is being tested, whereas actually the containers or packages are. The consumers unconsciously transfer the sensations from the package to the contents.

For example, in a test of three coffee packages, 86 per cent of the women wanted one of three coffees because they felt it was the best. Actually, all three coffees were the same—only the containers differed.

Another example of sensation transference was a test in which 97 per cent of a group of women claimed that a pat of white butter "tasted oily like margarine" and a pat of yellow margarine

"tasted like butter." This is an example of transference of a visual sensation to a taste sensation.

Sensation transference from the package to the contents is a common occurrence in the supermarket. That is why indirect preference tests are designed to reveal the difference in kind and degree of sensation transference (from the package to the product) of a number of packages.

Ocular measurements for determining involuntary reactions are now almost universally recognized as essential aids in developing an effective package. The accumulated information on colors and images is widely used. Association-type tests are now well known and indirect preference tests or sensation transference tests are now recognized as a reliable means for ascertaining actual consumer preference. All these marketing research tools have reached maturity in the last few years.

Pioneers in unconscious level testing made progress as rapidly as they did because they borrowed freely from the fields of Gestalt psychology and Psychoanalysis. Their experiments consisted mainly of adapting Gestalt psychology principles and psychoanalytical techniques to the field of marketing research.

Unconscious Level Testing and Depth Interviewing

Since "Indirect Approach to Market Reactions" was published in September, 1948, there has been much printed and said about motivation research or, as some say, motivational research. Most of the exponents of motivation research employ depth interviewing techniques. The basic difference between depth interviewing and the traditional interviewing or polling is that in the former the emphasis is on qualitative factors, whereas in the latter the emphasis is on quantitative factors.

Many research men, among them the author of this article, find that depth interviewing is not a technique that is reliable or practical. Experiments showed that when a person knew he was being interviewed he rationalized and set up all sorts of defense mechanisms in which ego elements and prestige factors played decisive parts. It was also found that the depth interviews were biased by the interviewers.

There were indications that the degree of error in depth interviewing depended to a considerable extent on the limitations of the particular interviewer. Astute marketing analysts often drew conclusions from depth interviews quite successfully. However, in the opinion of many, a marketing research technique is not a practical technique when it is dependent on the special skill of an individual.

Testing since 1935 has demonstrated conclusively that people are motivated by all sorts of factors of which they are not aware and since they are not conscious of these factors they cannot tell about them. In most instances, people cannot say whether they like or do not like something, because they are not aware of its effect on them. In other words, consumers cannot tell that they are moved to buy a product by a color, an image or a design, because they don't know that they are motivated by it. Few consumers are aware that they transfer the sensation from the package to the product.

The following case is an excellent illustration of the inability of people to tell what they prefer and it also shows that verbal indifference is very misleading.

Each woman in a group who participated in an interior decorating contest was offered a purse as a prize. The purses were available in four colors—red, green, blue and yellow. "Which color do you want?" each woman was asked. Of the group of forty-nine women, fourteen said they wanted red, eleven said blue, five yellow and two green. Seventeen of the women said, "I don't care which color I get."

The women were later asked to come up to the counter to choose their purses. The fourteen who said they wanted red, took red. The eleven who said they wanted blue, took blue. Of the five who said they wanted yellow, one took red, one took blue and three took yellow. Of the two who said that they wanted green, only one took green and the other red. Of the seventeen who said they didn't care about the color, twelve took red purses and five took blue ones.

In a direct interview type of research those women who expressed indifference would likely not have been counted. Actually, these same consumers revealed that the red purses had the highest preference, the blue ones the second highest. The green and yellow purses actually rated lower than they would have if those who expressed indifference to the color had been omitted from the total.

Over twenty years of testing experience has shown that people reveal their preferences and attitudes in spontaneous expressions and in unconscious reactions. In situations in which there are ego-involvements, in which prestige identification factors are present and in which defense mechanisms play a part, we should not expect expressions of real preferences or true attitudes.

An individual may be of the opinion that a hamburger and onion luncheon is "tasty" and a lobster Newburg luncheon is "unappetizing." But when asked which she or he considers to be a better luncheon, hamburger and onion or lobster Newburg, the answer may be the latter, because it has higher social standing, it has prestige identification. Whenever socio-economic factors get into the testing picture, we are confronted with prestige identification factors.

It was found that individuals do not like to admit ignorance. When a housewife is being interviewed she strives to appear intelligent. She does this because her ego is involved. That is, her ego prompts her to want to appear intelligent.

The following is an excellent example in which ego-involvement and prestige identification played important roles.

Before yellow margarine was available on the market, five thousand women were asked whether they would use margarine if it were colored yellow. Over 90 per cent said they would not.

There is little doubt that a large number of the housewives were aware that they did not know what they would do if yellow margarine were actually available. However, because of ego-involvement, they did not say, "I don't know." Each wanted to give the impression that she knew what she wanted, although she was aware that she did not know. Many of the respondents thought that they would use yellow margarine, but most of them believed they would lower their social positions in the eyes of the interviewer by saying they would like to have a less expensive spread than butter.

There is much evidence that frequently a person uses words to conceal true feelings. Sometimes he tries consciously and deliberately to hide an attitude. Often the individual is not aware of trying to conceal his feelings.

For example, smokers were interviewed about two package designs for cork tipped filter cigarettes. One package carried a crest on the front panel and the other package an illustration of a cork tipped cigarette. In all other aspects the packages were alike. The smokers were asked, "Which of the two packages

do you prefer for this brand of cigarettes and why?" Most of the respondents expressed a preference for the package with the illustration, because most of them said they could see what was in the package. However, in association tests, conducted on an unconscious level, the package with the crest rated much higher than the one with the cigarette illustration. Few could or would say that a crest influenced their choice but the association test showed that, unconsciously, the crest determined their choice.

Over twenty years of testing experience has shown conclusively that a consumer sampling of 100,000 or over will not produce reliable results if the 100,000 or more individuals are asked to judge designs or colors, because these individuals then are not reacting naturally to the designs or colors. They become critics, each of whom wants to give the impression that he is logical and practical and has good taste.

Actually, in the buying situation, the consumer generally acts emotionally and compulsively, unconsciously reacting to the ensemble of colors, images and designs, which in the subconscious are associated with the product.

Because consumers transfer the sensations from the package to the product or brand unconsciously, they cannot tell anything about the relationship between the package and the product. Tests must, therefore, be conducted on an unconscious level.

It was found that depth interviews did not eliminate the ego-involvement and prestige identification factors. Also, because more time was given in the depth interview than in an ordinary interview, there was more opportunity for the individual to build up his "defense mechanisms."

There is much evidence on the unreliability of depth interviewing. One example: An organization using depth interviewing techniques and an organization using unconscious level testing techniques were employed to make a study of the marketing effectiveness of a trademark in the form of a little girl and of an advertising campaign featuring the little girl with certain movie stars. The depth interviews and the association tests showed almost identical results on the movie stars. On the little girl, however, the depth interviewers arrived at conclusions exactly the opposite from the association test results. The depth interviewers found that consumers did not believe the little girl was real. They recommended not using her as a trademark. However, the association tests, conducted on an unconscious level, showed that she had the greatest number of favorable associations and fewer than 2 per cent unfavorable associations. The little girl has since become a very effective trademark.

Testing experience in recent years has led to the conclusion that testing should not be only quantitative, with emphasis on samplings of thousands of consumers, or only qualitative, limited in size of sampling to fewer than several hundred consumers. Each marketing test must be both qualitative and quantitative at the same time.

Reactions to visual media follow socio-economic, cultural, educational, sex and age patterns but it has been found that samplings of many thousands of consumers are not needed. Experience has shown, however, that in testing a national brand consumer samples much smaller than one thousand are generally too small.

An association test with a carefully chosen sampling reveals specific favorable and unfavorable associations consumers in general will have with the marketing tool. It reveals a wide gamut of consumer attitudes. The association test is usually conclusive.

The indirect preference type of test has always proved to be effective in cases where the association test did not bring out conclusive results.

Some indirect preference tests are "visual impression" tests, some are "product in use" tests. The test with the three coffee containers, mentioned at the beginning of this article, is an example of a product in use test. The interior decorating contest, in which purses were offered as prizes, is an example of a visual impression test. Both types of tests reveal important aspects of consumer behavior. The visual impression test is equal to the store or buying situation. The product in use test shows whether the visual impression or the sensation transference (from package to product) is lasting.

The indirect preference test gives a black and white answer. It shows that a majority of consumers want the package or that they don't want it, but it does not pinpoint reasons for consumer rejection or acceptance. It does not reveal specific consumer attitudes. In this respect, it has the same limitations as point-of-sale testing. However, an indirect preference test costs much less than going into a test market and it is much more reliable than a point-of-sale test conducted in three or four stores. Also of vital importance is that an indirect preference test does not reveal marketing plans to competition. Point-of-sale testing does.

Testing experience during the last twelve years has shown that a combination of association tests and indirect preference tests is a most reliable means for determining consumer reactions to a package. The indirect preference test is completely on an unconscious level. The sensation transference from the package to the product is wholly unconscious. The association test, however, reveals a range of consumer attitudes which is illuminating and of great aid in drawing conclusions.

Are Designers Guided by Unconscious Level Research?

A designer's creativity and originality are his greatest assets. Paradoxically, these are also the designer's greatest faults because he often tries to advance too far into the future. Often, a redesigned package loses brand identity.

We have evidence that most people enjoy change, but they are shocked by drastic change. To be effective, a package design for a brand must be original. It must have distinct character and specific identity. At the same time, it must appeal to the great majority of people who are not interested in design as such yet they are unconsciously influenced by it.

A modern package is designed for display. Display is a visual medium for influencing people.

Because package designs are produced by individuals, artists and designers, who are by nature, education and conditioning subjective, objective marketing research must be used to determine the effect the design has on typical or average consumers.

However, most designers believe or claim that they know how consumers will react to their creations. Some assume that the objective is to create a design in good taste. One well-known designer declared that he was designing for tomorrow. Therefore, he said, there was no use in testing with consumers of today.

Experience in working with designers has shown that most of them consider research with consumers a necessary evil. Evil in that the research is used to check the value of their creations and necessary only because their clients

want to have actual evidence that the proposed design will be an effective marketing tool.

Some designers with national reputations reveal great naiveté about the psychological factors in designs to be used for marketing. Many designers get opinions from their friends and their wives, assuming that this is research.

The following is taken from a letter written to a client by a director of a well-known package design studio.

"We had a poll on the two package designs with all the designers in our studio. They agreed unanimously that the round package is much better than the rectangular package."

Obviously, the socio-economic factors and education factors of consumers, the unconscious mind and indirect testing methods meant nothing to the writer of this letter.

Some designers are openly hostile to all research. Others talk about research and use it only when the client insists that it be used.

However, there are designers who want to avail themselves of all the objective information they can get to aid them in developing a package, trademark or product that will have maximum success in the market.

Why Marketing Men Rely on Unconscious Level Tests

Most merchandisers know that the package is no longer a mere container. They are aware that the present-day package is a sales tool. But what kind of package is an effective sales tool? What should the package look like in order to sell a particular product? That is a vital question in present-day marketing.

In the market place each stack of packages has a pattern of colors and images producing sensations that have a strong influence on the shopper, almost always on an unconscious level. Advanced marketing people know that rarely is a consumer aware that she is influenced by the color and design of a package.

The following are some of the reasons why many package designs are not effective marketing tools.

First, a designer is a highly trained individual with a much more highly developed sense of design than that of the typical consumer.

Second, designers have had considerable training in the graphic arts but have had little training in the optics and psychology of color and imagery.

A third reason is that until recent years there has been little scientific knowledge about the effects of colors. Only in the last few years has there been any serious attempt to study the optical and psychological aspects of color.

The fourth reason is that designers (also marketing men) "think" about packaging designs. The average or typical consumer merely reacts to them. The "expert" judges, the ordinary consumer feels. The specialist tries to be logical, the housewife is basically emotional.

The fifth and most important reason is that in order to determine the effect of a package (or an ad) on consumers, a complex, controlled procedure of testing with a carefully chosen sampling of consumers must be used.

Merchandisers no longer depend on marketing experts because they have found that many experts know or think they know how consumers reacted to an old package but they cannot predict how the majority of consumers will react to a new package which has a new ocular pattern and almost certainly a totally different optical and psychological effect.

Nearly all marketing men know that marketing research is needed in order to determine which of a number of package designs is an effective marketing tool and which is not, which ad will bring desired results and which will fall short of achieving the objective. But what kind of marketing research?

Surveys are conducted with the assumption that people know what affects them and on the premise that they can tell how they will react. We know now that individuals are generally not aware that they are affected by color and design and that they cannot tell what they will do.

Depth interviews are much too leisurely, too verbose and too intellectualized. They are removed from and are totally different from a real shopping situation. In the supermarket, shoppers act quickly and unconsciously, without verbalizing.

Unconscious level tests are designed to equal or approximate the shopping situation.

Association tests (derived from Psychoanalysis) have proved to be most effective devices for revealing consumer attitudes. They are effective because they do not give the individual an opportunity to bring out defense mechanisms. They bring forth the person's unconscious, uninhibited, unguarded reactions. Various devices are used as controls to keep the tests on an unconscious level.

Indirect preference type of tests have been found to be a reliable technique for determining preference; in this kind of test the consumer makes the choice without knowing that the choice is significant in any way to anyone but himself. As I pointed out, most indirect preference tests are sensation transference tests, which are totally unconscious. That is, the consumers in the test sample are completely unaware that they are transferring the sensation from the package (or copy) to the contents or product.

Systematic, controlled, unconscious level testing has in the last twelve years demonstrated its effectiveness in predicting how consumers will react to a package, a trademark, a color or color combination, an ad and other visual marketing tools. Management uses unconscious level tests because they find these tests a reliable means for discovering consumer attitudes and reactions. For twelve years marketing executives have used unconscious level research as a guide in making marketing decisions. The sales results have confirmed the reliability of the unconscious level testing techniques.

Marketing Experience Confirming Unconscious Level Test Results

Marketing success depends on a number of factors besides the package or trademark. In addition to distribution facilities and sales personnel, the major marketing factor is first of all the product itself or the quality of the product.

Next in importance is the package, because the package symbolizes the character of the product. It expresses the nature or personality of the product. In self-service markets the package is the silent salesman.

Third in importance is the kind and amount of advertising and promotion. These are third in importance because an extensive advertising program and potent promotion can be effective only if the product and the package fulfill the promise of the advertising and promotion literature. As stated before, the package represents the product. Through sensation transference the package becomes the product. The package is the visual manifestation of the product.

Still a fourth major factor in marketing is price. The price of an article is often based on psychological factors as well as on cost factors. Generally the

price has to meet competitive prices. Research and experience have shown that in many cases it is advisable to upgrade a product with a package that symbolizes high quality and to sell it at a higher price. There are a number of products which showed increased sales after they had been given high quality packages and higher than competitive prices.

Because of the complexity of modern marketing, it is not always possible to attribute the success of a brand entirely to a new package, to a new trademark or to a new color.

However, the following are examples of brands that have had phenomenal successes after only one major change in the marketing picture. In some cases it was the package, in others the trademark or the color. Each of these marketing successes was predicted by Color Research Institute tests. Each of these successes was brought about by developing a package, evolving a trademark, or choosing a color, on the basis of association tests and indirect preference tests. When a package or trademark design was the problem, the entire battery of ocular measurements, color ratings and field tests was used for eliminating weak package designs and adopting the design that rated high, or rated higher than competitive packages or trademarks.

Example 1. Lux Toilet Soap in Pastel Colors.

Tests of the colors of the Lux toilet soap and the tests of wrapper designs showed that the Lux toilet soap in four colors would be a great success. The tests showed that the market was ripe for toilet soap in pastel colors derived from four hues that are optical and psychological primaries. The association tests showed that the Lux toilet soap pastel tints met the psychological needs and wants of the American consumer. The Lux toilet soap colors were adopted after extensive research. The specific tints were chosen on the basis of tests conducted on an unconscious level.

Example 2. White Lux Toilet Soap.

Ocular measurements and association tests showed that the new foil wrapper would be a very effective marketing tool. Its great success is now well-known to marketing people.

Example 3. Sunbeam Bread (Quality Bakers of America).

Tests conducted on an unconscious level showed that Miss Sunbeam is a very effective brand-identifying image and that the wrapper is a very effective marketing tool. Quality Bakers of America are doing exceptionally well.

Example 4. Marlboro Cigarettes.

Tests conducted on an unconscious level indicated that Marlboro cigarettes in the new package should have from 500 per cent to 1,000 per cent increase in sales. The increase was much greater than that.

The advertising agency's campaign was no doubt largely responsible for the additional increase. The agency used the research findings very effectively in planning their advertising program.

Example 5. Dove.

Association tests showed that Dove, a Lever Brothers product, would be a great success. The field tests showed that the package rated outstandingly high in association with quality. It is now well-known that Dove is very successful.

Example 6. Blue Star Potato Chips. (Blue Star Foods, Inc.).

The vice president of the Blue Star Foods, Inc., states in a letter to Color Research Institute, "Our sales are ahead of last year on the new Blue Star bag line by about 15 per cent, but, as stated above, we have held back on promotions." This is an excellent example of the importance of the package in present day marketing. The new bag that passed "ocular" and "field" tests increased sales in spite of the fact that promotion was reduced drastically.

Example 7. Betty Crocker Cake Mixes (General Mills, Inc.).

The following was published recently about cake mixes: "Tests and analysis (made by Color Research Institute) showed General Mills that Betty Crocker's brand identification was weak: It lacked the connotation of quality and there was little family identification. In 1954, the company retained an outside design firm—Lippincott & Margulies—who recommended the use of a "spoon" symbol. Last year General Mills increased the quality connotation by the use of a larger and better product illustration without diluting brand identification or family identity. In the field of cake mixes alone the total market more than doubled in the last two years. The Betty Crocker cake mixes quadrupled in the same period. Each design change was researched by Color Research Institute of Chicago. In addition, the major design changes were tested in a limited number of stores."

Example 8. Good Luck Margarine (Lever Brothers).

There were three major changes in the Good Luck margarine package. It was reported that each change brought, or was coincident with, from 100 per cent to 200 per cent increase in sales.

Example 9. Imperial Margarine (Lever Brothers).

This is an example of a high quality package that symbolizes a high quality product and is sold at a higher price. The package was developed by Lever Brothers with the aid of unconscious level tests. The high price did not keep it from becoming a great marketing success.

Example 10. Bissell Carpet Sweepers.

This is an example of color being the primary factor in increasing sales. "Experts" predicted doom for non-electric sweepers. Association tests showed that treating non-electric but efficient sweepers with high preference colors would increase sales greatly. The recent success of the Bissell Company with its "color-tuned" sweepers is now widely known.

Example 11. Standard Oil of Indiana Trademark.

The trademark consisting of a torch and oval in red, white and blue passed all tests with very high ratings. To say that the company has used this trademark successfully is superfluous.

There are many more brands that have become great successes mainly because of the package, the color or the trademark that had been developed with the aid of systematic, controlled, unconscious level research. Some of the other companies that have been guided by unconscious level research are: Procter & Gamble; General Electric Company; the Warren Company; Universal Potteries, Inc.; Felt & Tarrant Manufacturing Company; Club Aluminum Products Company; Hawley & Hoops, Inc. and Scott Paper Company. There are many other large and small companies that have profited from unconscious level testing. ■

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LYNN E. CASTLE has been Training Supervisor of the Sandia Corporation since 1951. He was supervisor of Personnel Counseling at Western Electric Company and Training Supervisor at that corporation's Hawthorne Works in Chicago prior to going with Sandia. Before 1949, Mr. Castle was Principal of Schools at Riverside, Illinois from 1931-37, and from 1923 to 1931 he was Superintendent of Schools in Iowa. Mr. Castle is the author of manuals entitled *Job Instruction* and *Complaints and Grievances,* and has written articles for various trade journals.

The Administrator As A Technician

By Lynn E. Castle
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Albuquerque, N. M.

It is a matter of pride in business to evaluate performance by results. The proof of the pudding is in the eating. The pragmatic test is applied. Did it work? Did it produce the desired effect?

Yet we are not always consistent in this philosophy. Especially in judging administrative actions where the purpose is to get a certain result from people at work, we often relax the rigor of this criterion and let attention shift to other factors in the situation which explain what happened in terms other than that of sheer executive or supervisory proficiency. We excuse a failure to get administrative results by a kind of reasoning that would not be tolerated in the handling of technical problems. Or when administrative measures succeed, the commendation centered on the people who "did the good work" obscures the larger fact that it was the wise choices and skilled supervision of the administrator that made success possible, and even predictable.

Three examples may show what happens. An industrial engineer is employed to establish standards of performance for several operations which together will produce a specified result at a predicted rate to meet contractual obligations. Supervisors are given these standards. They put people to work, but results fall short of what was expected. All too often, at this point, critical attention is directed not toward the administrative choices that had been made, but toward other factors in the situation that seem to be associated with the failure. The new union steward was trying to make a name for himself with his members. A key supplier defaulted on the quality of a component, causing delays. The supervisor says the engineer's standards were unrealistic. The engineer thinks the supervisor coddles his people. But seldom does anyone pay attention to the gross fact that the administrative process itself, as it was applied to the situation as a whole, failed to work. It didn't produce results.

Take a second example. A small manufacturer in an increasingly competitive field was facing losses and possible failure because his production costs were forcing him out of the market. His associates advised hiring an expert consultant to slice out the fat, establish performance standards, and tighten up the operation generally. He decided instead to go down in the shop and put the whole problem up to the employees. He called the supervisors together and gave them facts and figures. He told them to tell their people the whole story and ask them to think over what could be done. He called in union leaders and discussed the situation with them. He made himself available on the floor to answer questions and talk with anyone who had ideas. Eventually he held meetings with supervisors and their people in each department. He asked if they thought they could increase production in their department, and if so how much. In some of these groups the people themselves set tentative standards calling for an output higher than they had ever made before. Most of them succeeded. Many raised the ante upon themselves again. Other departments tried the same plan, and in the end, production advanced sufficiently to bring costs into line and enable the company to price itself back into the market. In telling what happened, a great deal of emphasis was placed on how the employees themselves pulled the company out of a hole and kept it in operation. Something had "worked" and everybody was happy. But very little attention was paid to the fact that this manager had applied an administrative process and had got results—that by the pragmatic test his own administrative performance had been superb.

When the performance in question is technical, however, this diversion of attention does not occur. A few years ago a reputable engineer designed and built a large suspension bridge over a portion of Puget Sound. Soon after, as nearly as I can recall from newspaper reports at the time, an unusual sequence of wind currents set the bridge to swinging in increasingly violent rhythm until the floor of the bridge literally shook

itself to pieces, with loss of life and great expense before the bridge could be rebuilt and traffic restored.

In judging the catastrophe, unlike most administrative failures, the whole emphasis in the public press was directed at the faulty design of the bridge. Nobody thought the builders had scamped their contracts. Blame was not assessed against the suppliers for faulty materials. Nobody asked if the politicians had appropriated too little money to build an adequate bridge in the first place. In other words, in this "technical" failure, attention was never diverted from the design process itself. The designer had made a series of choices that did not in fact produce the required result, but produced disaster instead. He was no doubt discredited as a technician. His evaluation of how Nature, in the form of steel masses, wind velocities, rhythms, etc., would probably behave, was faulty. The technical design processes he applied did not work, and the judgment upon him was direct and severe. On the other hand, if the bridge had stood, his technical reputation probably would have been secure.

LET US look for a moment at what we mean by a technician. He is someone who knows how to do something—to get a result. He practices an art. Looking more closely, three things are true of him.

1. He works toward a defined result. He knows the result he is to get, and has accepted it as a workable objective. Usually the result has been agreed upon and put down in some kind of blueprint or specification.
2. He is familiar with the materials and natural forces with which he must deal to get the result. A toolmaker knows his steel—what it can do under different conditions. If it fails to respond as he expected, he looks to his hand to see how he addressed it wrongly. Knowing his materials, he respects them for what they are, and lives within their limitations.
3. He is possessed of a particular skill, by which his chosen materials or processes can be handled and made to produce the desired results. This skill is often highly developed, and it is in harmony with the nature of the materials and processes of his craft.

It is these three, his devotion to a result, his knowledge of natural processes, and his skill in responding to them, that set him apart from other men and make him a technician—one who can do something the ordinary person cannot do. The particular result he undertakes to get is often decided by others, in terms of larger purposes and values connected with an enterprise as a whole. He may or may not be aware of them. But the particular result he agrees to produce has been made clear, in language he understands. This he insists on, because he cannot work without it.

His knowledge of his materials is the familiarity of long association, under varying conditions—the intimate daily acquaintanceship of handling and working with the thing for long periods of time. It may also include a more or less elaborate scientific "knowledge about" the materials and processes with which he deals. For example, the tool and die maker may study metallurgy, adding broader and more precise knowledge from the laboratory to his intuitive feel for the responses of his steels. But without the intimate familiarity born of long handling, such knowledge would be sterile.

His skill, of course, comes mainly by practice—the repeated focusing of all his attention on a trial of eye and muscles to get a particular result—until success after success fixes the pattern of action into ever more intricate but always more reliable configurations of performance that do in fact turn out the precise result that was required—without failure and without exception.

The technician allows himself no excuse. If the results vary, or fail to appear, he looks to see what he did wrong, or how he had wrongly estimated the forces he was handling. Nature is his arbiter and she can do no wrong. A piece of steel has no designs against him. It can only do what steel must do. If the temperature of his oven was wrong and spoiled the piece, he does not blame the apparatus. He looks again and resets the controls, or takes the burner apart and corrects the difficulty.

Likewise with the engineer, if in his field he is a real technician. The bridge must stand. All the vagaries of Nature outside or within it must be anticipated and allowed for. He must know all these forces for what they are, and must have the skill to utilize, control and outwit them. Else he is not a true technician. He cannot plead that Nature, in some unexpected guise—the "human factor", perchance—popped up and double-crossed him. The bridge must stand!

This brings us to the administrator. Can he, as does a technician, apply effective means to accepted ends? Can he work toward defined results? Can he know and understand the human forces with which he must deal? Can he practice skills that will reliably influence these forces toward a defined result? Can he as an administrator, be a technician?[1]

THESE questions the writer, as an administrator, has asked himself many times. To him they have seemed at least a wholesome form of self examination, and he has wondered if they might offer some leads toward a useful view of the administrative process itself.

Let us examine the three characteristics of a true technician again and see whether they can be related to the administrator's role. We should have little difficulty with the first one, that of a defined objective, for part of the administrator's job is the defining of objectives, the selecting of lesser results as means to larger ends. The kinds of choice are two. One choice is the selection of the ends or aims themselves in terms of the larger values and meaning of the enterprise—the choice of what is more worthwhile. It is not between the right or wrong answer, but between the greater value or the lesser.[2] For example, the directors of a university may decide to build a library instead of a new dormitory. The heads of an enterprise must decide, as Peter Drucker points out, what kind of a business they want to be in. The other is the choice of means which will, in fact, produce the chosen end. It is a technical choice. Here, as one goes down the scale from the general to the specific, the answers can be more and more precise. Some things are fairly well known about how to foster the health of the people of a city. More specifically, when it comes to making a plan that will best serve to care for the sick in a particular area, a fairly definite organizational and operational program can be drawn up. And within the limits of this program, more specific objectives can be marked out, such as the location and design of a hospital. These in turn become the ends toward which particular administrative

[1] *Dr. L. J. Henderson in a lecture at Harvard once contrasted the effectiveness of Talleyrand at the Congress of Vienna with the failure of Woodrow Wilson at Versailles. He commented that Talleyrand succeeded because he "acted as a technician".*

[2] *Simon, Herbert A.,* Administrative Behavior (*N. Y. The Macmillan Co.,* 1949) *Chapter III.*

operations are addressed. And all of these objectives, be they greater or lesser in the hierarchy of administrative ends and means, may be thought of as results which some administrative technician at his respective level in the organizational hierarchy undertakes to deliver.

The second characteristic of a true technician is that he knows the materials and forces with which he must deal. Through long familiarity, he has a feel for how they will respond. He has respect for them, and does not expect the impossible, nor does he blame them if they surprise him, but only looks more sharply for what at first he failed to understand.

WHAT are the raw materials and processes with which an administrator deals? They appear, for the most part, in living and moving situations, usually of great complexity, in which the goals and purposes of an enterprise are sought through the cooperation of individuals and groups of people, each with their own inter-related demands and expectations. These situations always have an economic dimension which limits them, and they are set in a matrix of time.

It is a fair question whether the administrator can hope to know and understand the constantly moving dimensions of these situational complexes with anything like the familiarity and precision that would entitle him to aspire to the name of "technician". Can his predictions of the probable consequences of following this or that alternative action be accurate enough to approximate the degree of control we have come to expect of the true technician in the more tangible fields of operation from which the term was borrowed? Probably the most we can say is that more is being discovered all the time about what actually goes on within a given organizational setting, and how this is related to the perceptions,[3] personalities and demands of the people in it and the group norms and social ideals that mold and often control their behavior.

There are a number of signs that this is so. Naive assumptions of simple cause and effect in human situations are giving way to more realistic but more complex conceptions that take account of reciprocal and interacting personal and social influences flowing in many directions at once and within which a variety of forms of balance and unbalance can occur. Administrators today are beginning to have a weather eye out for the effects of their decisions upon the equilibrium of the organization,[4] and where they must needs upset the balance they more often seek measures to re-establish it.

The fact of constant change in human situations also is receiving more attention. Just as we accept the fact that downtown Pittsburgh (1956) is no longer the grimy Pittsburgh (1935) that we remember, so some of us are now beginning to "look and see" before we assume that X organization today is necessarily the X organization last March that we had such unsatisfactory dealings with, or even that Smith (1953) is Smith (1955). This means that more attention is being paid to processes, both human and organizational, and less to the more static aspect of structure.

An inquiring glance is being cast upon some comfortable verbal labels that have long served to excuse us from critical examination of areas of human relations we do not understand. For example, it has recently been shown that the term "attitudes" as currently used may refer to any one of a wide variety of different responses, many of them poorly defined or impossible of operational definition.[5]

Fewer among us now fall into the error of assuming that just because we have a name for something, that thing must therefore exist. More and more students of human phenomena are going out to look at the territory, before drawing any more verbal maps.[6]

Our assumptions about the educational process itself, by which people learn and become, we hope, more able, are being rudely overhauled. No longer can an informed supervisor talk about "putting people through a course" as the equivalent of bringing about a change in their behavior that management has decided would be desirable. We are coming to face the fact that people are individuals, with their own purposes and perceptions, complex and infinitely different from each other. Each takes out of a given learning situation (lesson, presentation, etc.) that which meets his needs at the time. You can never be sure just what he is learning out of what you have cooked up. You had better try to find out, of course, but you cannot assume that through "training" or "instructions", or any other educational means you are able to command the neat control of employees' responses that these terms seem to imply. Growth of some kind you can be sure of, given a favorable nurturing ground. Individuals learn. You can't stop them. But what they learn is their business, and you had better have respect for it. You are face to face with a natural process here, and you will stand uncovered in its presence and seek to understand how it works. You can put people through selected experiences—experiences from which other people seem to have learned what you are seeking to instill, and hope for the best.[7] Freedom for the learner, however, is of the essence—freedom to take what he can use and build it into himself—freedom to become in greater measure that which he is and truly wants to be. The educational process works within him, and you can only provide some of the conditions, and try to understand and respect the result.

The learning process, for better or worse, is one of the phenomena with which the administrator operates. Insofar as he understands it and deals with it realistically and intelligently, he operates as a technician. And, incidentally, all this applies with equal force to the "developing" of administrators themselves. They learn but are not, in any simple or direct sense, taught.

THERE is coming a new awareness that among all the things that an administrator is dealing with in any situation, not the least difficult factor is himself. He, like any other worker, is bringing his own personal demands and needs to work with him every day. He too must find ways to subordinate himself to organizational objectives and limitations without forfeiting the integrity of his own purposes. He must learn to take orders without losing his self respect, and to give or pass on orders with humility. But more than the ordinary worker, he has to learn to become aware of feelings of his own that he is bringing into every situation with which he deals, aware of them so that he can keep them in their place as he strives for an objective view in making his judgments. This personal context[8] which he can never wholly escape or ignore, is now recognized to be one of the most difficult aspects of the administrator's role.

[3] *Snygg, Donald and Combs, Arthur W.*, Individual Behavior (*N. Y. Harper & Bros.*, 1949) *Chapter II.*

[7] *Kelley, Earl C., "Education is Communication"*, ETC: A Review of General Semantics *Summer*, 1955, *pp.* 248-256. *See also his book*: Education for What is Real (*N. Y., Harper*, 1947).

[8] *Roethlisberger, F. J. and others*, Training for Human Relations (*Harvard University, Graduate School of Business Administration*, 1954) *pp.* 155-158.

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These are some of the beginnings of an understanding of the intricate phenomena with which an administrator deals. If he is curious, he may read reports of the studies and become familiar with what they reveal. Yet it must be pointed out that this kind of information is only "knowledge about" what goes on, important as that in its place may be, and that it can be fruitful in his daily struggle to produce administrative results only as he is able to relate it to an intimate intuitive feel of the situation as it moves, and as he lives in the middle of it, with the full responsibility for its outcome hanging hourly around his neck. This is "knowledge of acquaintanceship", a kind of understanding that is not come by out of books, but only, as Mayo pointed out, through long arduous labor in the field itself.

This is a kind of wisdom that, in the administrator, enables him to sense the tension in a situation before it blows up in his face, or predict the probable yield of alternate courses of action, the rational dimensions of which cannot fully be known at the time he has to make the choice.[9]

Not the least aspect of this wisdom is the capacity to differentiate at any given stage between those parts of a situation that can be changed, and those which cannot—between the conditions that must be lived with in the situation, and the means he has at his control to deal with it and bend it toward his purposes.[10]

All this brings us close to what we have called the third characteristic of a true technician, namely, that he is possessed of skill that the ordinary person does not have. His skill is in harmony with the nature of the phenomena of his craft, which is another way of saying that it works. It is his way of influencing and controlling these phenomena in the direction of any objective or result toward which he as a technician has obligated himself.

Insofar as the administrator is able to get the results he goes after, he does it through the exercise of skill. Parts of his skill are special to his craft alone, but other parts he holds in common with all those other technicians who deal with Nature at her most complex—as she appears in the moving processes of human situations. But all such skill is what it is because of the nature of the materials and forces with which it deals. Nature is what she is, and the technician had better find her out, and take it from there.[11]

It follows, therefore, that one aspect of an administrator's skill will have to do with apprehending what Nature is up to, in any situational complex that the administrator happens to be facing. A physician might call this diagnostic skill. It includes the skill of observation and particularly the skill of receiving communications from others. These communications, as we shall see, are not always in words, and even when they are, their meaning can often be missed. The administrator who is able to receive them can do so because through the practice of his skill he has developed a degree of observational judgment that the ordinary person does not have.[12] What he is able to see depends to a large extent on what he is trying to accomplish.

Along with observation and receptivity, it includes also a capacity, partly intuitive, for analysis and integration that we often call creative imagination. Administrative skill, like love, is "a many splendored thing".

His skill appears, of course, in everything the administrator does. He talks with another individual in a face-to-face relationship. He observes on-going group activity and makes evaluations of what is happening. He discusses situations with several people at once, sometimes as a member and often as a leader. In many of these roles he participates in planning, organizing, problem solving and trouble shooting but his particular skill as an administrator is the skill of dealing with all of the dimensions of a problem at once, so that no neglected part can pop up later to plague him or blow his bridge apart. His skill is more than rational for it deals with relationships and conflicts between powerful sentiments that our culture has built into all of us—the norms of "decent" behavior, standards of right and wrong, the fear of threats to personal integrity —and with today's expectations that "come hell or high water" we must be efficient and scientific in our approach.[13] What makes it more difficult is that the conflicts between these influences are going on within the administrator himself. Yet always in the midst of this orchestra of sentiments and human expectations, without too much discord and at least with basic harmony, the administrator is required to get things done—to show results. This is his skill, to deal with human situations as moving and living wholes, and cause them finally to yield up their fruits according to man's design. Insofar as he can do this, he may in truth call himself a technician. ■

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[9] *Simon, Herbert A., op. cit. Chapter V.*

[10] *Davis, Kingsley,* Human Society (*N. Y. The Macmillan Co.,* 1949) *pp.* 125-128.

[11] *A young engineer asked one of our senior supervisors at Sandia, "Who is the final authority in this laboratory on a question of design?" The answer came back, "Nature! And, young man, sometimes she is a bitch."*

[12] *Roethlisberger, F. J. and others,* Training for Human Relations, *op. cit., Chapter III.*

[13] *Roethlisberger, F. J. and others, op. cit., Chapters VIII and IX.*

The June issue of ADVANCED MANAGEMENT will contain speeches made at the **S.A.M. SMALL BUSINESS Conference** by the following:

Senator John Sparkman • Dr. Earl P. Strong • Clifford C. James • John M. Fox

There will not be a Proceedings issued on this conference.

W. JAY MERRILL, Jr., had his first job with industry as Staff Statistician for the American Power Jet Company, a small operations research company in New Jersey. In 1951 he became Consulting Statistician in IBM's Endicott Engineering Laboratory. In 1953 he left IBM to join General Electric as Statistical Consultant. Mr. Merrill is a candidate for a Ph.D. from Ohio State University. He received his B.A. from the University of Delaware.

WILLIAM H. HOFFMAN has been with the Riegel Paper Company of Milford, New Jersey, since 1955. He left the position of Industrial Engineer with IBM's Endicott, New York, installation in 1951 to join Riegel. He was employed as Assistant Chief Industrial Engineer at the Cherry Point U. S. Marine Corps Aircraft Overhaul and Repair Division prior to joining IBM. Mr. Hoffman received a B.E. from North Carolina State College and is now doing Graduate work in I.E. at Lehigh University on a part time basis.

Economic Receiving And Distributing Points As Found By The Median Method

By
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THERE are many situations where a business establishment would be benefited by finding a central location which would minimize cost or distance traveled. Some typical situations are location of: (1) shipping or receiving points, (2) department layout, (3) toolroom location, and such—right down to the level of locating drinking fountains.

In this paper, a method is presented which differs basically from the method now in use for problems of this type. Necessarily, any reasonably rapid mathematical method applied to actual operations gives, at best, an approximate answer. This method merely gives better approximations than before. The example and discussion which follow are in terms of shipping point location but can, of course, be applied to other problems where minimum distance is required.

One factor to be considered in plant location is the total freight cost for receiving raw materials and purchased parts and for distributing the finished product. This factor would, of course, be used in conjunction with other factors such as utilities rates, type of community, tax rates, labor market, etc., in an attempt to arrive at a compromise yielding a minimum total cost of operation.

Transportation varies greatly in importance from one industry to another, simply because the cost of transportation may represent a large percentage of product cost in one industry and a very small percentage in another. However, unless it is obvious that transportation costs are insignificant in comparison with other costs which vary with location—as may be true, for example, of a watch manufacturer—the economical receiving and shipping point would always be of interest in order to determine the direction in which to move to reduce transportation costs.

Relating Transportation Costs to Ton-Miles

The basic property of the method to be presented here is to locate the area where the summation of ton-miles for all incoming and outgoing shipments is a minimum.

It is evident that this would not be the area where freight costs are minimized unless all ton-miles of shipment were equal in cost. It is equally evident that a large variation in costs per ton-mile exists due to product differences, methods of transportation, and somewhat due to the distance shipments travel.

Before discussing how we can compensate for these variations, it should be noted that we are interested primarily in the portion of freight costs which vary with ton-miles. If we reduce the ton-miles of a shipment by one-tenth, we will not save one-tenth of the shipping charges, simply because some of the freight rate is independent of ton-miles. There are fixed costs such as loading and unloading, and there are certain overhead expenses that will not vary with ton-miles, but will be basically dependent upon weight only. These fixed costs will not be the same for all methods of transportation, and the methods of transportation available will not be the same for all locations.

But these are characteristic of location in much the same manner as utility

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rates and tax rates are. The area where the fixed costs of transportation are the lowest may not be the best location just as the area where tax rates are the lowest may not be the best location—the final choice depending upon a compromise with other factors. Certain products, however, demand a specific method of transportation because of their inherent properties, or because it can be shown that no other method can compete with it in spite of location. For this reason, the problem becomes self-simplifying when applied to an actual case.

We want to find, then, the area where the costs which vary directly with ton-miles are a minimum. To do this, we must determine how much the cost of each shipment varies with ton-mileage. This is impossible to determine accurately unless we know the approximate total distance the shipment will travel. This in turn depends upon the shipping point that we are trying to find. A minor variation and slight error will be introduced because the change in cost per ton-mile will not cancel out exactly if the median is shifted due to the use of dollar costs in place of tonnages. This error can be neglected except in cases of unusual asymmetry in the distribution of tonnages.

The first step, in any case, is to locate a suitable median point. This must be done using tonnages by the method set forth in Sections II and III. When this point has been located, then costs can be figured out. In many cases this first step may be all that is required as an approximation to the desired shipping point. If the costs are not proportional to the tonnages at the various locations, then repeating the method using the dollar costs in place of tonnages is desirable. In cases where a company ships different classes of merchandise, additional accuracy will be introduced into the plot by use of factors which convert other class tonnages to ton equivalents of a base class through relative shipping rates per ton-mile.

The total cost for a given shipment can be found by multiplying its cost per ton-mile by the total ton-miles. The number of dollars can then be substituted for the tons at each point, and thus dollar-miles can be minimized in the same manner as ton-miles can be minimized. However, the explanation of the method is based on the use of ton-miles. For this reason, we can treat the dollars/mile as tonnages, and follow through to find the minimum total ton-miles.

Our goal is to minimize the adjusted ton miles of shipping for a given number of tons to be shipped. Since the number of adjusted tons (AT) and the shipping points are fixed, the ton miles can be minimized by choosing a point which minimizes the total number of miles from it to these shipping points. The so-called "median" is such a point. This is simply a point which divides the distribution exactly in half. Since it may be a bit difficult to visualize what this means in two dimensions we will first consider a simple one dimensional example.

Using the numbers 1, 2, 3, 4 and 10 the median is 3, since it is the point which divides these five points so that there are an equal number of points above and below it. Note that it is the number of points and not their numerical value which concerns us in working with the median. To show that the median does in fact minimize the sum of the distances to the other points it is only necessary to prepare a sample table as shown below in which these sums are computed from the median, i.e., 3, and from the points lying on each side of it (2 and 4).

Deviations

Points	No. of Points	From 2	From 3	From 4
1	1	1	2	3
2	1	0	1	2
3	1	1	0	1
4	1	2	1	0
10	1	8	7	6
Sums	5	12	11	12

It is evident that the sum of the distances is least when measured from the median.

To extend this analysis to the case where the points are not located on a straight line but are scattered around on an area, it is only necessary to draw two lines on the area at right angles to each other with each line dividing the number of points in two equal parts, that is, with half of the points lying on each side of each line. The intersection of these two lines or axes is then a median point. In the two dimensional case a number of different median points can be found depending upon orientation of the axes with respect to the compass directions. These median points will indicate an area in which the best shipping point may then be determined, considering the other factors involved.

We now proceed to work an illustrative example in detail and also to bring out specific points which are better dealt with in practice than in general discussions. The graphical plot shows the method of working the problem and should be consulted often while following the verbal explanation. In order not to becloud the principles, it will be assumed that the tonnage of different items shipped to and from each point has been adjusted to a common basis independent of distance.

The first step is to transfer, by any convenient means, all shipping points from a map to a piece of graph paper maintaining the relative orientation. At each point on the graph paper write the adjusted tonnage belonging to it. In our hypothetical example we have chosen twenty points with the T's indicated on the plot.

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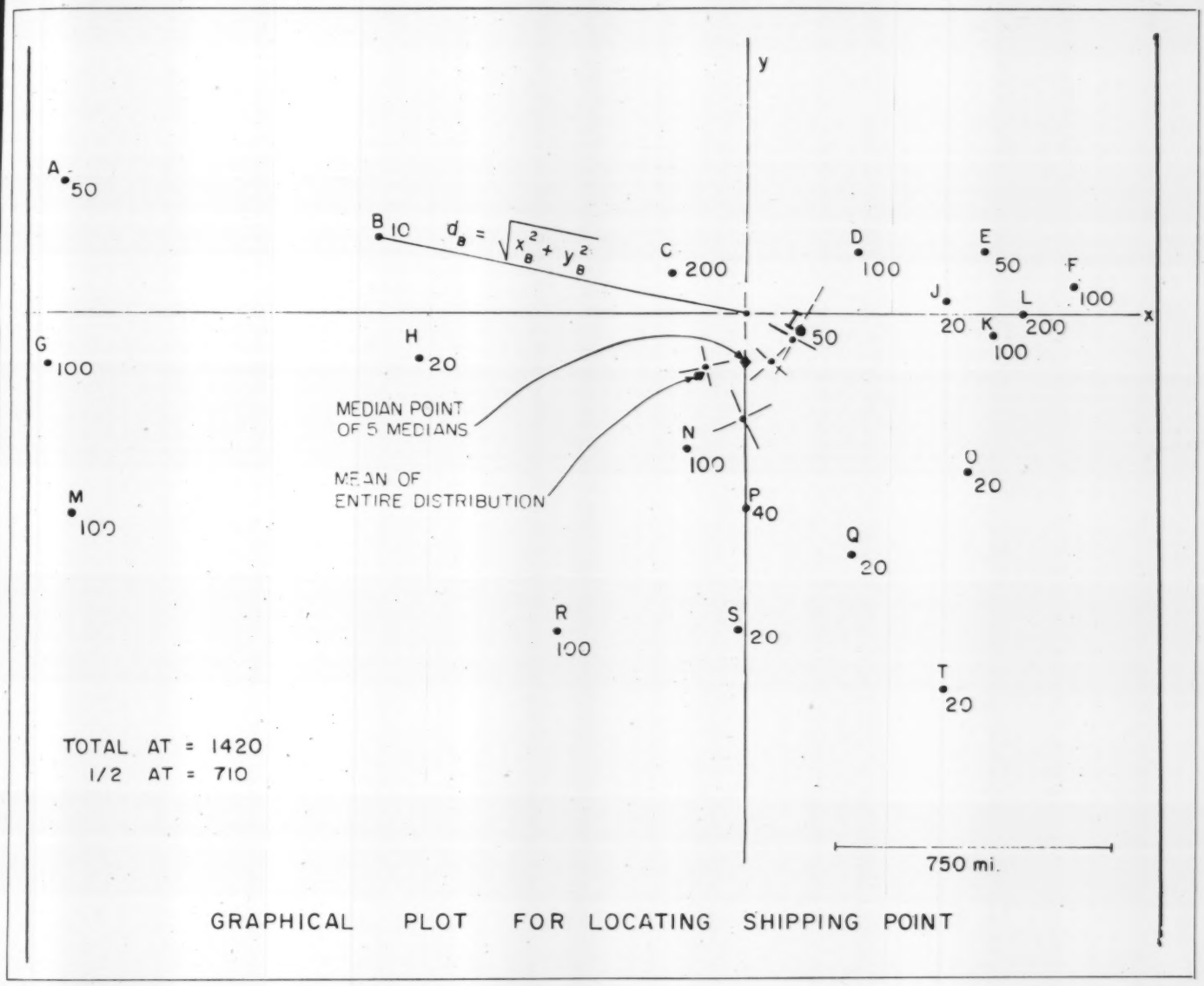

GRAPHICAL PLOT FOR LOCATING SHIPPING POINT

Next we want to locate the x and y axes so that the T's are divided in half, both horizontally and vertically. Note that it is the tonnages and not the twenty points we are working with now. We are regarding each distinct point on the plot as being made up of as many coincident points as there are T's attached to it. To avoid cluttering the graph, only the customary axes are completely drawn in.

The inclined axes are entered as dashed crosses. They are found in the same manner as the x and y axes except that the plot is approached at different angles. In our example, both the x and y axis pass through a point, L and P respectively. This occurs because ½T, or 710 is reached within the T of these points. Five medians were found altogether which roughly form a trapezoidal area beneath the x, y intersection. The importance of getting several medians will become clear in the interpretation of the results.

Having located this area, which is relatively large in this instance because there are only twenty different points sparsely spread over the plot, we are to choose a practical shipping point. If there were several locations available within the median area which had equally suitable shipping facilities, the choice among them would have to be made by actually calculating the shipping costs from each potential location and deciding on the most economical one. This situation is not likely to be found in practice. If one satisfactory spot falls within the area it is the one to be chosen. Suppose that in our example there were no such spots and that only points C, I and N were adequate. "I" would be chosen because it is considerably closer to the median than are C and N. If it were inadequate, and the choice were between C and N, it would be necessary to calculate the costs before arriving at a decision. Note that finding the median area indicates consideration of points such as N and P, which otherwise may have been disregarded for C and D. In addition, it shows that looking for a shipping location in a southerly direction is preferable to searching toward the north.

The point decided upon (1) is the approximate solution to the sample problem. In this example the median of the 5 median points saves about 6 per cent in total distance over the mean.

This method of minimizing freight costs can be applied to determining the optimum location for tool rooms, mail rooms, etc., within plants. Also, the optimum location for a warehouse can be determined in this manner. In such a case, the incoming shipments would originate entirely at a manufacturing plant, or plants, and the outgoing shipments would be those to the various points of distribution. Wherever there is a distribution of material, this method can be employed to minimize transportation costs. ■

New Management Writing . . .

INFORMATION for ADMINISTRATORS

By Paul Wasserman. Published by Cornell University Press, Ithaca, New York, 1956. 375 pp. $6.00

IN THIS book of sources for executives the author essays a new approach in guides to factual information. It was developed from a course taught by the author who is librarian in the Graduate School of Business and Public Administration at Cornell University.

Sources of information are described and addresses or other directions given to aid in their access and use. For example, in the first chapter, which is concerned with libraries, various types of special libraries are described and some of the most significant are mentioned individually. Several more detailed reference guides are noted. The practice of interlibrary loans is discussed.

Other chapters provide information on government sources, newspapers, periodicals, trade and professional associations, chambers of commerce, reference books and centers of business and public information. An appendix includes lists of university bureaus of business and government research, information sources on foreign countries, American chambers of commerce in foreign countries and bank publications on economic conditions in foreign countries.

A principal weakness of the book is an apparent lack of consistency and clarity in approach and objective. The author states in his introduction that the book "is intended to be an aid for those active in government and business as well as for students in these fields." Perhaps it is in the bifurcated objective of trying to serve both government and business administrators that the trouble lies. Or perhaps it is the attempt to make the guide useful both to students as a course text and to practicing administrators as a desk reference manual that keeps it from seeming wholly satisfactory for any group.

In its present form, the book would seem to be most valuable for students and for librarians, especially those in a small busines library. I would look forward to an improved second edition, preferably in two volumes—one to meet the interests and needs of business administrators, the other for government administrators. Although the management processes of government and business have much in common, the data for policy determinations have much less in common.

The Society for Advancement of Management is given a good plug as a management research organization by author Wasserman even if he does persist in inserting a superfluous "the" in the title which was officially dropped some years ago. SAM is also listed at the William Street address from which the Society moved several years ago. Of *Advanced Management* the author says, "A journal containing useful articles on administrative management and excellent reviews of the best recent books in the field."

Lowell H. Hattery

Professor, Govt. and Public Administration, The American University, Washington, D. C.

HOW TO NEGOTIATE A SUCCESSFUL CONTRACT

By Lewis M. Brown, Member of the California Bar Association. Published by Prentice-Hall, Inc., Englewood Cliffs, N. J.

MANY business men who pride themselves upon their ability to negotiate a successful deal, often are surprised to find that they have failed to protect themselves should the deal go wrong.

To recognize the elements of a good deal is one thing. To successfully negotiate one requires more than a good sense of values, or a persuasive personality.

The end product of each meeting of the minds is a contract, preferably a written one. Unless the negotiator knows from experience what is needed to give legal substance to a contract, he will fail to include in his strategy the points necessary to insure that his interests are safeguarded.

There are many complex business relationships which confront the business man, and each deal is different. Business men who pre-plan their negotiating strategy (some do) have a need for an authoritative, comprehensive, easily understood guide as a check list, to which they can refer quickly as they plan their campaign. *How to Negotiate a Successful Contract* by Louis M. Brown, Esq., member of the California Bar, is just such a tool. It is designed to help business men do a better job of contract preparation, and to avoid litigation by covering the elements of their deal so that the contract has legal enforceability.

The language is that of a layman—easily understood; no legalistic vagueness; short, concise, very much to the point. In short, readable.

A particularly valuable aid is found in the check list of "Points to Remember" at the end of each chapter.

Here is a book that has long been needed. I predict that it will be a well-thumbed desk book that will keep many a business man out of trouble.

Hiram S. Hall

Hall & Lange
New York

Reviews In Brief

THE OFFICE IN TRANSITION—Meeting the Problems of Automation by Esther R. Becker and Eugene F. Murphy; Harper & Brothers, New York 16, N. Y., Price $3.50.

Based on the experiences of offices in which this transition has been successfully accomplished, the volume describes the problems, human and technical, that can arise in the course of introducing automation.

COST DATA FOR THE MANAGEMENT OF RAILROAD PASSENGER SERVICE by Dwight R. Ladd; Division of Research, Harvard Business School, Harvard University, Boston, Mass., $4.50.

This study by Professor Ladd focuses on the types of cost data and cost concepts which might be useful to railroad managements in controlling the passenger deficit.

ELEMENTS OF SUPERVISIONS by William R. Spriegal, Edward Schulz, and William B. Spriegel (2nd Edition); John Wiley & Sons, Inc., New York 16, N. Y., $6.00.

Industrial management for the supervisor—a modern treatment of essentials. This second edition has been almost completely rewritten to include developments of the last fifteen years in management.

THE ADMINISTRATOR—Cases on Human Relations in Business (3rd Ed.) by Glover and Hower; Richard D. Irwin, Inc., Homewood, Illinois, $7.50.

These cases which focus upon administrative situations and problems cover a wide variety of business enterprises and relate to all levels of the organizational structure.

SCIENTIFIC INVENTORY CONTROL

By W. Evert Welch, published by Management Publishing Corporation, 22 West Putnam Avenue, Greenwich, Connecticut, Price $12.00.

This is the first and only book to date on **mathematical** inventory control written for the man who must do the job himself. Neither a textbook, nor a theoretical study, it plunges directly into the heart of the inventory problem—**how much** to make or buy, and **when** to make or buy it.

NONPARAMETRIC METHODS IN STATISTICS

By Donald A. S. Fraser; published by John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y., $8.50.

Dr. Fraser provides an account of methods for handling standard statistical problems when the familiar assumption of normality is replaced by general assumptions. A unified collection of new techniques, the book offers nonparametric theory as an integrated part of statistics.

University Chapter News

Indiana University Chapter's Vice President of Membership welcomes George Ligon, Graduate Student, into the Chapter as the 300th member. John Boyd of the Membership Committee was the man who signed up Mr. Ligon, thereby giving Indiana a "300 Club". Indiana University formed the first "100" and "200" Clubs. This Chapter is also the First Place Award winner for the past two years, in competition with all other collegiate chapters. (Left to right: John Boyd, George Ligon and Jack Rominger.)

Membership in the "300 Club" was won by

Indiana University
University of Texas

Membership in the "200 Club" was earned by

Mississippi State College
University of Connecticut
University of Houston

The following chapters were admitted to membership in the "100 Club" on the basis of their splendid membership results:

Alabama Polytechnic Institute
Boston College
Boston University
Los Angeles State College (Ramona Campus)
Ohio State University
Ohio University
Tennessee Polytechnic Institute
University of Alabama
University of Illinois
University of Missouri
University of Pennsylvania
University of Pittsburgh

The following Chapters received Membership Growth Awards in recognition of their significant increases in membership during the second semester of 50% or 100% or more:

American University — 50%
City College of New York — 50%
Cornell University — 50%
Duquesne University — 100%
Fenn College — 50%
George Washington University — 50%
LaSalle College (Day Division) — 50%
LaSalle College (Evening Division) — 50%
Los Angeles State College (Ramona Campus) — 100%
Louisiana State University — 50%
Mississippi State College — 100%
Pennsylvania Military College — 50%
Sacramento State College — 100%
San Diego State College — 50%
Syracuse University — 100%
Temple University — 100%
University of Detroit — 50%
University of Michigan — 100%
University of Missouri — 100%
University of Pittsburgh — 50%
University of Rhode Island — 50%
University of Texas — 50%

NEW UNIVERSITY CHAPTER AWARDS

"By their fruits ye shall know them"

THREE PROGRESSIVELY managed companies sincerely interested in the development of managerial potential, and desirous of encouraging the effective preparation for business of young men and women in accredited colleges and universities, through the recognition of accomplishment, have made available achievement awards for the University Chapter Division of S.A.M. "Industrial Progress Through Enlightened Management" has been the motto of the University Chapter Division, which now pays tribute to the splendid spirit of the management of these companies that have made available these worthy awards.

The University Chapters submit to the Vice President in charge of the division, Bi-monthly Control Reports of planned and accomplished activities. They then are judged on the basis of program, organization, financial controls and public relations. The first ten chapters receive recognition at the Fall Management Conference of the Society in New York.

The Remington-Rand Achievement Awards, given by the Remington-Rand Company of New York, to the first five University Chapters judged by the terms of the Performance Awards Plan:

First Place	$350.00
Second Place	325.00
Third Place	300.00
Fourth Place	275.00
Fifth Place	250.00

The A.M.P., Inc., Performance Awards are provided by A.M.P., Inc., of Harrisburg, Pennsylvania, to the second five chapters in standing at the end of the academic year under terms of the Performance Awards Plan —

Sixth Place	$200.00
Seventh Place	150.00
Eighth Place	125.00
Ninth Place	125.00
Tenth Place	100.00

These grants are designed to recognize achievement and the money is to be used by the Chapters to send their officers to the Fall Management Conference in New York City to receive the citations and banners, and to participate in a National Management Conference concerned with the advancement of the art and science of management.

The Hamilton Membership Awards; gold Hamilton watches are granted by the Hamilton Watch Company of Lancaster, Pennsylvania, in recognition of membership growth in the individual chapters. The watches are in turn awarded by the winning chapters to the individual in each one who contributed most to the significant membership record of the Chapter. These awards will go to: (1) the Chapter with the largest membership on April 1; (2) the Chapter with the largest percentage increase in each of the periods, April 1 to December 1, and December 1 to April 1; (3) The Chapter with the largest absolute increase in each of the periods April 1 to December 1, and December 1 to April 1.

CARL A. DAUTEN has been Professor of Finance at Washington University since 1945. Previously he taught at the University of Arkansas, Missouri Valley College and at Shurtleff College. He received his A.B., A.M. and Ph. D. from Washington University. Professor Dauten is the author of *Business Finance* (Prentice-Hall), *Business Fluctuations and Forecasting* (Southwestern) and Associate Editor of the *Journal of Finance*.

JOSEPH W. TOWLE, Professor of Management at Washington University since 1954, received his A.B. at Lehigh University, an M.B.A. and Ph. D. from Northwestern University. He was a Faculty Member of Northwestern University from 1945-54, has been a Staff Member of Booz, Allen & Hamilton, Personnel Director of the Bodine Electric Company, Chicago, and Employment Manager of Montgomery Ward & Company. Professor Towle is a member of the Society for Advancement of Management and was the Chicago Chapter's president in 1953-54.

"Living Cases" For Management Education

By Professors Joseph W. Towle and Carl A. Dauten

School of Business Administration
Washington University, St. Louis

THE extensive use of case studies in management education is leading to numerous modifications and adaptations of the original methodology. One of these innovations is becoming known as the "living case" study. Experimentation with this approach to the use of cases in teaching business administration has been going on at Washington University in St. Louis for several years. The program requires the interest and cooperation of business executives.

In many situations substantive materials are presented successfully to students by lecture or conference procedures, but the discussions of realistic business problems found in the case method are considered by most teachers to be invaluable in the development of analytical ability. The case discussions give the students experience in sizing-up business situations and in recognizing the important issues and problems facing the management of the concern under consideration. Free discussion enables participants to see business problems from all points of view. With such analysis of business situations the student has the oportunity to see and participate in developing courses of action or approaches to the solution of the problems encountered. This case-study work develops an approach to intelligent action and teaches the student how to work cooperatively with others which will be invaluable when he is faced wih management responsibilities.

In addition to using cases in class discussions many collegiate schools of business have found it worthwhile to invite prominent business executives to their campuses to present lectures or to conduct conferences on various phases of management. This is done in an endeavor to keep college students informed on current business problems and practices and so help them to prepare for their careers in business. The schools owe a great deal to the businessmen who frequently spend much time and effort in preparing and delivering important messages before university audiences. At Washington University, this relationship with the business world has been formalized. All students in the School of Business are required to take a non-credit course called *Management 02, Current Business Talks*, which meets for one hour each week and which is addressed by successful business executives. In addition to keeping students informed about modern business policies and practices this course provides information which is helpful in selecting business careers. The program also presents for the students' observation prominent men and women who have demonstrated qualities of leadership in business.

The philosophy at Washington University which developed the *Management 02* course has also been evident in the development of a different procedure for case study teaching. The usual case study course employs written descriptions of facts and details about business situations. Although these case studies are factual they are actually analyses of conditions which have existed in the past in some business organization. They are only as objective as the case writer can make them. Usually they range from several hundred words to as many as several thousand words in length. The students are expected to carefully study these write-ups of busines conditions and problems prior to class meetings and the case discussions. The "living case" approach combines the values of the executive's talk on current business with the benefits of the case study technique. This is done by having management representatives from a company present to the students some of its operations, policies and problems in detail. These presentations are made through plant visits, lectures and conferences, and company materials placed in the library for reading. This "living case" approach can provide the basis for discussing and analyzing currently important problems and issues.

While the details of procedure may vary with the course or with the instruc-

tor a pattern for the "living case" study is discernible. First, and most important, it is necessary to find a company which will cooperate to the satisfaction of all concerned. The larger organizations are usually in the best position to take part in such a program, but smaller companies have also done so. If the company has a public relations department there is little difficulty, but for the concern which delegates the handling of such an activity to executives already busy, company cooperation is not always easy to obtain. Nevertheless, some company management feels that the development and execution of such a program is good experience for their administrators. Participation in living case presentations can be considered as an activity which provides personal growth and development for executives.

THE "living case" program can be used to analyze problems in the fields of accounting, production, marketing, finance, and personnel. It can also be used in courses at the general policy level. The basic techniques are much the same, but the information required is different. In the specific fields the data is primarily on the problem at hand for solution, although information is also needed on other phases of the business which are affected by the solution. At the policy level the major problems in all areas are considered and major stress is placed on their interrelationships.

The "living case" study program as applied to a study of over-all company policies usually provides the following activities for the students:[1]

1. The cooperating company makes an initial presentation in which the history, the operations, the organization, and major policies of the enterprise are presented. When appropriate the background and scope of the industry in which the company operates is reviewed. This entire presentation is usually made by a talk or a series of talks by one or more company executive. In some cases this initial presentation is made through motion pictures or sound-slide films.
2. All available reading material on the company is provided for library study. Annual reports, policy manuals, employee handbooks and other company materials supplement the usual library sources of information such as appropriate newspaper, magazine and journal articles.
3. An inspection tour of the company's plant, offices and other facilities is made when possible. Every effort is made for the students to actually observe the production and operating activities of the company. If the physical layout is involved to any degree in the problems being considered pictures are taken of the problem areas and slides are made. These can then be studied so that repeated trips to the plant are avoided.
4. A panel discussion by a group of company executives is presented for the students. If possible, representatives from the general management, sales, production, finance, accounting and personnel divisions of the company are included on this panel. During this discussion current company problems and the policies developed to approach those problems are brought to light. At this time students are allowed to ask questions of the executives and discussions are expected to be frank and realistic. Some analysis of the future outlook for the company is also made at this time.
5. An informal and non-directed discussion of the company and its problems and policies is conducted by the instructor without any company representatives being present. This class period permits the exchange of ideas about the company among the students, and the free and objective analysis of the company organization and management. Each student is encouraged to think for himself regarding the company situation.
6. Each student writes a complete report on his appraisal of the company studied. His detailed report presents his own size-up, his own analysis of the opportunities and problems facing the enterprise and the policies and courses of action which he feels the company should adopt or continue to follow. It is in this final report that the student is required to make final decisions regarding the issues and problems he has studied. In the report he obtains experience in determining plans of action based on his own decisions.
7. A final discussion is conducted on the size-up of the company and its problems and on the solutions proposed. Whenever possible company officials are present at these discussions.

For most of the business school courses in the various areas of business such as production, marketing, or finance it is appropriate for a single living case study to extend over a period of from two to four weeks. A regular course might have two or three of these cases in one term and they would be interspersed with lecture, discussion and regular case materials.

At times, the Business Policy course for seniors or graduate students has studied one company for an entire term. For example, in 1954 Sears, Roebuck & Company sent several executives from Chicago and other points to St. Louis once each week for a period of twelve weeks. The Cluett-Peabody Company, the Ralston Purina Company and other concerns have cooperated in the same manner. While the long case study provided a more detailed investigation and analysis of one company's problems and policies some instructors believe that there is merit in studying several different business cases during the term of a single course.

Advantages of "Living Case" Studies

Our experience at Washington has shown that the "living case" study program is academically sound and is superior to many other teaching methods. Some of these advantages can easily be noted.

1. The "living case" study program has most of the advantages of studying written case reports and much is gained by using up-to-date siutations and problems which are currently being solved. The entire experience of a "living case" study is fresher and more dynamic than the written case study.
2. The student has a better learning experience when he is required to seek out facts in discussions with business executives, in observations of company operations or from materials in the library. His sources of information are even more challenging than the written case and they are more like "real business life".
3. In the written case study the student frequently complains, "we don't have the facts in this situation". The "living case" makes it possible for him to get more facts about a given problem which is of interest to him. He is able to seek

[1] *The outline for one "living case" study used in the spring of* 1956 *is presented in Exhibit I.*

EXHIBIT I

The Ralston Purina Company Case

I. Objective

The organization, the policies and the problems of The Ralston Purina Company are to be studied for the four-week period beginning April 23. An investigation of the over-all operations of the company is to be made in order to provide a better understanding of corporation management in general and the Ralston Purina Company management in particular. The case is designed to illustrate the need for administrative decisions and policy determination in a business enterprise.

Students are expected to study special library materials and other available books, articles and newspaper reports about the company and the industry. In addition, this case makes it possible for the student to become more familiar with the farm problem and its current economic and political implications.

II. Program of Study

Lecture-discussion meetings will be held at 1:10 p.m. in Room 112 of Wilson Hall on the days scheduled. Films of the industry and the company will be shown and comments will be made by Mr. Herbert Graff during the section meetings. Dates, topics and speakers for the case are as follows:

Monday, April 23	*History and Organization of the Company,* Mr. G. M. Philpott, Vice President, Advertising.
Monday, April 30	*Financial Policies of the Company,* Mr. L. B. Stuart, Vice President, Finances.
Wednesday, May 9	*Production Organization and Policies,* Mr. R. E. Rowland, Vice President, Products and Manufacturing. Mr. D. L. Grant, Vice President, Chow Production.
Monday, May 14	*Sales Policies and Procedures,* Mr. L. C. Stevenson, Vice President, Chow Sales Mr. Geofrey Baker, Vice President Grocery Products.
Monday, May 21	*Personnel Policies and Practices,* Mr. F. Wendall Huntington, Vice President, Personnel.

III. Final Report: *Monday, May 28:*

Students are to submit a written report on this date. It is expected that this report will evaluate and discuss the policies, the practices and the problems of the Ralston Purina Company.

out facts about problems which he thinks are important rather than confine himself to the facts which a case writer sometime in the past felt were important. While the student may get an executives opinion instead of objective facts in this pursuit, it is again more like "real business experience".

4. In the "living case" program the students are able to talk with business executives. These experiences with proven business leadership have many advantages. One of the most important is that the students receive an appreciation of the problems due to the personalities involved in the cases. This appreciation is frequently more difficult to achieve in the written cases.
5. The student becomes aware of current and future business problems and of the newer techniques being considered for their solution.
6. The faculty has an opportunity to contribute to the development of new techniques which may be of help in solving current problems since they are constantly confronted with current problems in "living cases."

Industry Cooperation Needed

No doubt some of the management education programs found in industry which are sponsored by companies, by associations or by other groups, have used company examples and realistic problems in their instruction. Adaptations of the "living case" study program might be possible in this executive development work in industry. It would probably involve greater reliance on complete case histories and more thorough analysis of company problems.

Most companies have reported that their presentations of "living cases" have been valuable experiences for their own executives. Participation in case discussions with mature college students is intellectually stimulating. In the past it has been found that executives frequently return to their work places after case discussions with new viewpoints, with renewed interest in their businesses and occassionally with some valuable new ideas. In any event the success of this type of case study depends upon cooperation between educators and business concerns.

Instructors in collegiate schools of business are preparing young men and women for careers in management. Business executives may contribute to these endeavors by providing cases and problems from their own companies for the students' analysis and study. The "living case" study program is being developed as another step in the direction of better education for management and greater cooperation between the universities and industry in general. ■

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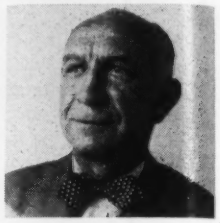
R. O. BECKMAN is the author of *The Vintage Years* and *How To Train Supervisors*. He also writes a newspaper column for senior citizens titled "The Vintage Years". His writings are based on years of experience in personnel and training work. Long connected with Griffenbragen & Associates, Mr. Beckman has also been personnel director for the city of Cincinnati, Kroger Stores and Butler Brothers. He is a member of the American Psychological Association and the Gerontological Society.



Turnover In Relation To Older Workers

By R. O. Beckman

Personnel Consultant
Florida State Industrial Commission
Miami

INFORMATION on the mobility of workers going from one occupation, industry, or employer to another is needed for the effective utilization of the nation's manpower. Business executives and personnel men have long talked about employee turnover—as they have about the weather—but done little about it. There are now new indications that labor costs may force management to take more specific action.

Recognizing the needs for facts in defense mobilization and civilian employment planning, U. S. Labor Secretary James P. Mitchell, himself a former personnel executive, has instigated a number of studies of employment patterns in industry since he took office. Earlier surveys were concerned specifically with the mobility of tool and die workers, electronic technicians, and molders and coremakers.[1] The latest contribution made by the Labor Department to the study of employment stability is a by-product of the Older Worker Study made last year in seven major labor markets of the country to determine the extent to which workers of 45 and over are being utilized and how more of them can be placed by the public employment offices.[2]

Reliable nation-wide figures about turnover have not been available because of the difficulty of collecting them. The only basic data of use is that on manufacturing enterprises gathered monthly by the Bureau of Labor Statistics. This report has shown a monthly turnover rate of from three to four per cent since the depression.

The information gathered from seven areas in the course of the older worker investigation with reference to establishments employing nearly four million workers suggests that turnover rates in various industries and in different labor markets are sensationally higher than the relatively low and stable figures presently reported for manufacturers. The following rates are reported for the year ending in June, 1955, in the older worker report:

TABLE 1 — Annual Turnover Rates by Age in Seven Labor Markets

	Number per 100 Employed	
	Hires	Separations
Total all areas	61	54
Under 45	71	62
45 and over	38	36
Detroit	42	34
Under 45	54	42
45 and over	18	18
Los Angeles	83	78
Under 45	88	85
45 and over	63	64
Miami	113	107
Under 45	118	113
45 and over	87	82
Minneapolis-St. Paul	53	46
Under 45	60	51
45 and over	29	27
Philadelphia	22	19
Under 45	35	28
45 and over	11	9
Seattle	93	86
Under 45	99	89
45 and over	74	72
Worcester, Mass.	42	35
Under 45	54	44
45 and over	22	18

Hiring rates are shown to be uniformly larger than separation rates so that turnover is generally spoken of in terms of the lower separation rates. Variations among the seven areas are startling. Employment in staid Philadelphia appears to be five times as stable as in glamorous Miami. Worker mobility appears to be more than twice as great in booming Los Angeles and Seattle as in Detroit.

Wide variations are to be expected and are found among different industries. Turnover is lowest in the financial, real estate and insurance field, rising in wholesale and retail trade, non-durable manufacturing and service enterprises and reaching its peak in the construction field. As to occupation, turnover is lowest in the skilled and service trades and rises gradually to a maximum in clerical and sales work. Over-all rates are much the same for men and women in relation to the proportions in which they are employed.

The outstanding finding of the older worker study is the startling stability of workers of age 45 and over as compared to those under 45 as is shown in the foregoing table. In some cities the turnover of workers under 45 is twice that over that age. In all cities it doubles for workers *under 25* as compared to those over 45. In analyzing employer actions in hires and separations, the survey discloses that in spite of their job stability, older workers represented 40% of all job seekers but obtained only 22% of jobs filled during the year under study.

TABLE 2 — Percentage Distribution of Hires, Separations, Employment, and Job Seekers, by Age, Seven Areas

	Hires	Separations	Employment	Job Seekers
Under 45	77.9	75.6	65.4	60.0
45 and Over	22.1	24.4	34.6	40.0

Other tables prepared by the Labor Department showing the workers of 45 and over as a percentage of total hires and job seekers indicate that older workers' share of annual hires ranges from only 15% in Detroit to 30% in Seattle. In six areas, moreover, their proportion of total unemployment was nearly two and a half times as large as the proportion in which they were hired.

Based on size-of-firm categories, starting with employers of 8-49 workers and ranging upwards, turnover rates are higher in smaller firms. The hiring rates of older workers also decreases as the size of the firm increases.

FIRMS with pension plans are much less likely to hire workers 45 years of age and over. Firms without pension plan coverage hired about 45 older workers per 100 employed in contrast to a rate of 16 per 100 in employment with such coverage. Firms with pension plans tend to have a much more stable work force of both older and younger workers. The quit rate for workers under pension plans is only 5 per 100 for older workers and 23 per 100 for workers under age 45, compared to 14 and 32 respectively, for these age groups without pension coverage. Only in the construction industry, where pension plans are rare, do older workers get equal shares of the hires in jobs with and without pension coverage. In financial and real estate firms the chances that an older worker will find a job are three to one if he applies to firms without pension plans.

When turnover rates are computed for workers classified by age and length of service with the same employer, the advantage lies with the older group and shows the rate to decrease with the number of years on the job. For men over 45 employed for less than a year a higher rate is found than for younger men. This due in part to the fact that employers in need of temporary or casual help tend to employ older applicants and possibly to the hiring of the least desirable of the older group without proper consideration of their past employment record.

It was hoped that the older worker study would develop a mass of comparable data from the seven labor markets from which general conclusions could be drawn as to reasons for separation, geographical mobility, and length of service by occupation, for example. Such information would have been most valuable but was only obtained in part in certain areas. In others, notably in Miami, the absence of adequate employer records made it impossible to obtain the necessary data.

In some cities more than half of the reporting firms, especially smaller ones, kept no record whatever of the ages of their workers. It then became necessary to obtain the age data from the Social Security Administration. At least one in 20 employers appear to have no record of their workers except as they are listed on current payrolls. A few small firms had no information other than that shown on stubs in a check book. The so-called personnel record of many establishments is confined to a separate sheet on which wage payments are recorded for social security reporting purposes. This record may or may not give other information about dates of employment, promotions, or personal details. A large publisher with more than 1,000 workers had no central record whatever of who was employed. Each department hired and fired as it saw fit and kept no consistent record of its employees.

The reports published by the U. S. Department of Labor Employment Service are primarily valuable to business and personnel executives in the disclosure that workers of 45 and over are not effectively utilized in the nations' economy despite their potential in experience and stability. They also throw an entirely new light on pension costs as applied to older workers and suggest ways in which the public employment service can improve its service to mature job seekers.

The disclosure that employee turnover rates are sensationally higher in many areas, industries, and establishments and that many firms fail to keep even the most elementary record of their manpower suggests that the gospel of personnel administration has a fertile field. Basic data regarding turnover and employee performance and potential is quite as important as cash or inventory accounting records.

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FOR many types of jobs the cost of hiring and training a new worker may reach several hundred dollars. It may be out of order to draw any general conclusions from the seven-city turnover figures in the Labor Department report. If, however, turnover in American industry at large does approximate an annual rate of 54 and the cost per worker replaced is assumed to be $50 it will be seen that it is costing business nearly two billion dollars a year.

Systematic and continued study of turnover is a profitable undertaking since it reveals how this expense, whatever its size, can be reduced. First of all it will spotlight the inadequacies of hiring practices and lead to more careful evaluation of aptitude, past work experience, and personality factors. This will tend to eliminate job hoppers and disclose the possible instability of youth as compared with maturity. It will determine the relative importance of home ownership, number of dependents, and other characteristics in some circumstances. It will center attention on the desirability of better scheduling of production, especially on the part of firms such as building contractors. It may suggest a review of individual pension and retirement plans in relation to the hiring of workers over age 45. ■

References

1. *Bureau of Labor Statistics Bulletin No.* 1120, *Tool and Die Makers; No.* 1150, *Electronics Technicians; No.* 1162, *Molders and Coremakers.*

2. *U. S. Labor Dept. Bulletin BES No. R*151, *Older Worker Adjustment to Labor Market Practices.*

*BES No. E*152, *Counseling and Placement Services for Older Workers.*

BLS No. 1199-1 *and* 2, *Older Workers Under Collective Bargaining.*

BLS No. 1203, *Job Performance and Age.*